





HEAT PUMP WATER HEATER

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PRODUCT

MODELS LIST

Product type	Model		Heating capacity	Outline diagram	
	Outdoor unit	Equipped water tank	W	Water tank	Outdoor unit
Split type	GRS-S3.5PdG/NaA-K	SXD200LCJW/C2-K	3500+1500 (electric heater)		

Notes:

- ① The above table lists specifications of the air source water heater series product for static heat up. The product standard is EN16147-2011, (EU) No 814/2013, EN 12102-2008.
- ② Conditions for testing heating capacity of the unit: outdoor ambient temperature: 20°C DB/15°C WB; Initial/ending water temperature in the water tank: 15°C/55°C.
- ③ For units with a water tank equipped with an electrical heater, that is, the water tank model of which includes “ D ”, both the heat pump and electrical heater are started for heat up under low ambient temperature or rapid mode.
- ④ If the product specification changes with product improvement, refer to the parameter specified on the nameplate.

FUNCTION

No.	Name	Function
1	Compressor	Increases pressure for the refrigerant and provides driving force for circular flow of the refrigerant as a main driving component.
2	Four-way valve	Reverses flow direction of the refrigerant when the system switches between the normal heat up mode and defrosting mode.
3	Water tank	Provides heat exchange channel for refrigerant and water and stores hot water for daily use.
4	Electronic expansion valve	Speeds up high-pressure and high-temperature refrigerant and reduces pressure and adjusts the circulation amount of coolant.
5	Finned tube exchanger	Provides heat exchange channel for refrigerant and air.
6	Fan motor	Enhances heat exchange on the air side of the finned tube exchange and provides a low-temperature heat source continuously.
7	Filter	Filters impurities in refrigerant to protect components with small diameter.

PRODUCT PARAMETERS

Product Parameters of Outdoor Unit

Model		GRS-S3.5PdG/NaA-K	
Rated Heating Capacity ^(*)	W	3500	
Rated Input Power ^(*)	W	850	
COP ^(*)	W/W	4.10	
Load Profile	-	L	
COP _{DHW} ^(**)	W/W	3.17	
Energy Efficiency Class ^(**)	-	A	
Water Heating Energy Efficiency ^(**)	-	129%	
Annual electricity consumption (average climate conditions)	kWh	795	
Maximum Input Power	W	1500+1500W (Electric Heater)	
Outlet Water Temperature	°C	Default: 55°C, 35°C~55°C	
Power Supply	-	220V-240V ~50Hz	
Insulation Level	-	I	
Protection of Ingression	-	I PX4	
Refrigerant	Name		R410A
	Charge	kg	1.40
Outline Dimensions	W x D x H	mm	842x320x591
Package Dimensions	W x D x H	mm	941x371x660
Gross/Net Weight		kg	44.5/38.5
Sound Power Level ^(***)		dB(A)	63
Operating Range		°C	-25~45°C

Notes:

- ① (*) Value obtained with the following conditions: Outdoor temperature: 20°C DB/15°C WB; Water tank temperature (start/end): 15°C /55°C.
- ② (**) Value obtained with an air temperature of 7°C and a water inlet at 10°C, as per EN16147-2011, (EU) No 814/2013.
- ③ (***) Value obtained as per EN 12102-2008.
- ④ Under fast water heating mode, electric heater helps to heating water.
- ⑤ Please always see the nameplate for the exact data as this table is subject to change.

Parameters of the Water Tank

Coil water tank

Model	Capacity	Power Supply to E-heater	Heating Power of E-heater	Dimensions	Net Weight	Size of Pipe Between the Main Unit and Water Tank Coolant	Size of Pipe at the Water Acquisition Position
	L	-	W	mm	kg	mm	mm
SXD200LCJW/C2-K	185	220V-240V~50Hz	1500	545 x 545 x 1919	52	Φ6, Φ9.52	DN15

Notes:

- ① Type selection of water tank shall also be made based on local climatic conditions and opinions from professionals.
- ② For units with a water tank equipped with an electrical heater, that is, the water tank model of which starts with SXD, both the heat pump and electrical heater are started for heat up under low ambient temperature or rapid mode.
- ③ If the specification parameters change with product improvement, refer to the parameter specified on the nameplate.

Performance Data of Hot water Mode

Te (°C)	Mode	inlet water T1 (°C)	outlet water T2 (°C)	Capability (kW)	COP (W/W)
45	Hot water	29	55	2.90	7.80
20		15	55	3.50	4.10
7		10	55	1.80	3.80
0		10	55	1.90	2.30
-7		10	55	2.40	2.20
-15		10	55	1.90	1.80
-20		10	55	1.40	1.50

Work Temperature Range

	Models
	GRS-S3.5PdG/NaA-K
Heating	-25~45°C
Note: The above value range indicates the outdoor ambient temperate range for normal operation of the unit. For details on the configurable range of water temperature, see the nameplate of the water tank.	

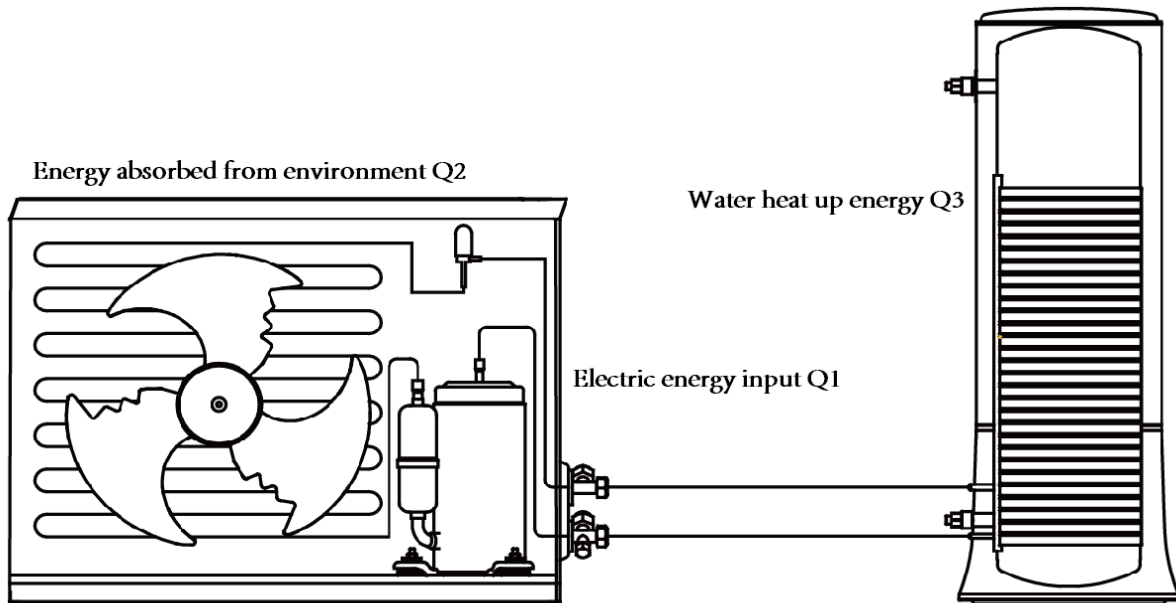
Working Principle

Brief Introduction to Working Principle

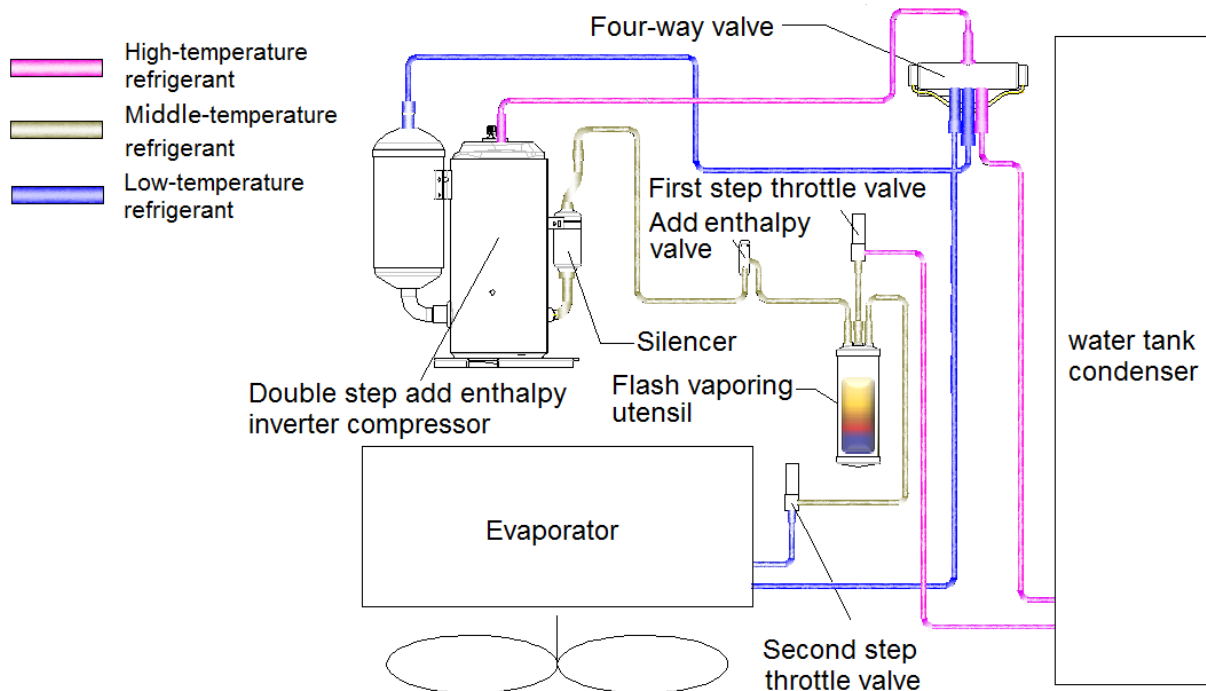
As the refrigerant has different phase-transition temperature under varied pressure, it enables the heat pump to transfer heat of low-temperature heat source to the high-temperature heat source. The air source water heater unit utilizes the heat pump to obtain heat from the ambient low-grade energy (air source) via thermodynamic cycle by consuming partial electrical energy, and then delivers heat to the water tank for heating up water.

Working Diagram

Working Diagram



$$\text{Energy obtained from water } Q3 = \text{Electric energy input } Q1 + \text{Energy absorbed from environment } Q2$$



The compressor consumes partial electrical energy to compress the refrigerant into high-temperature and high-pressure gas. After entering the condenser (the water tank coil of a water heater in static heat up mode), the gaseous refrigerant transfers its heat to water as its saturation temperature is higher than the water temperature and leaves the condenser after condensing into liquid. The liquid refrigerant enters the throttling device (generally the electronic expansion valve) for speedup and pressure reduction. As partial liquid vaporizes, the liquid refrigerant has two states (gas and liquid) when leaving the throttling device. The low-pressure refrigerant enters the vaporizer (the finned tube exchanger of a water heater in static heat up mode) and is vaporized into liquid after absorbing heat from air as its saturation temperature is lower than the air temperature. The low-pressure gas is inhaled by the compressor for the next cycle.