

**GOODHEAT**  
GOODWE GROUP MEMBER



# Global No.1 PV Direct-Driven Heat Pump Brand



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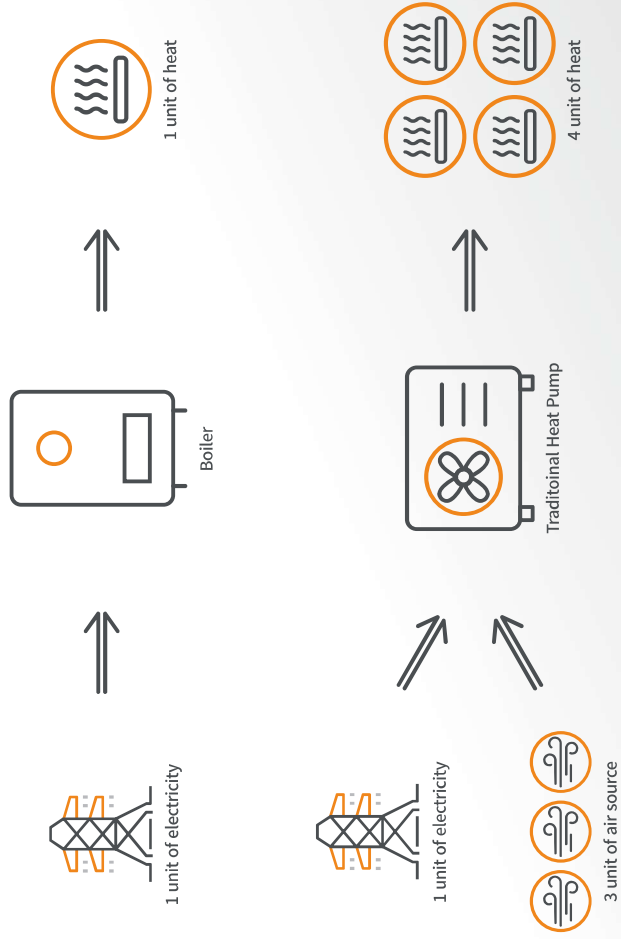
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Direct from the Sun, Powered by GOODHEAT.



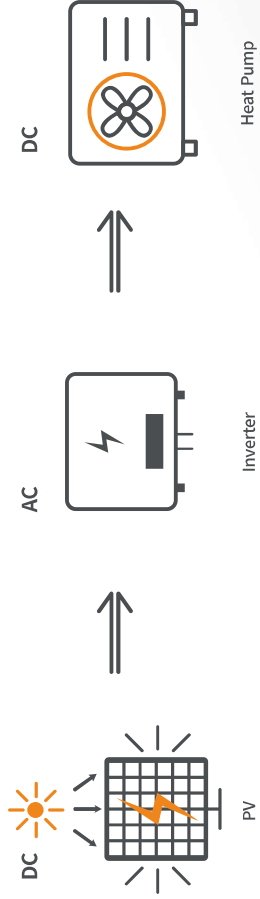
### Still worried about soaring heating electricity bills?



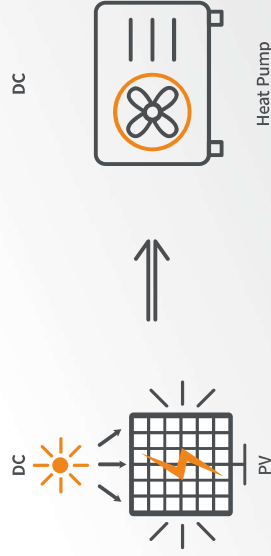
### Almost **100%** Power Savings



## Still worried about wasted energy?

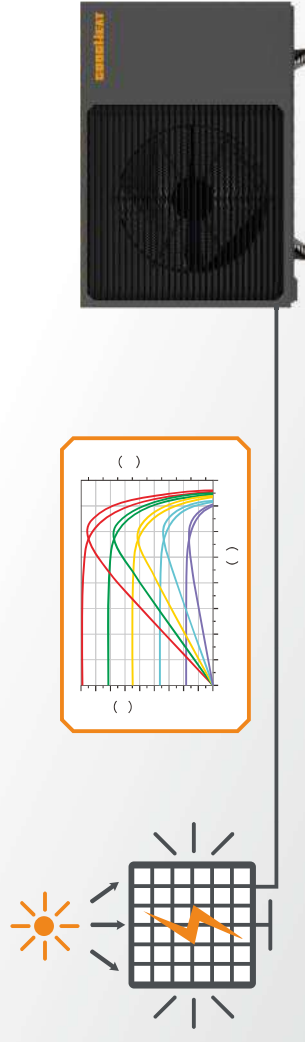
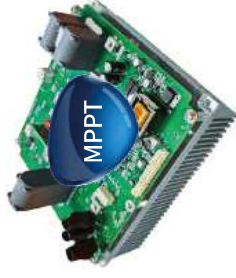


Without the external inverter, you can redirect an extra 2-5% of your solar power from heat loss straight into the compressor.



## Smart MPPT – Getting the Most from Every Solar Panel

- **Ultra-High Conversion Efficiency**  
Efficiency up to 98.1% (significantly higher than 95% for older models), achieving higher generation and better ROI. Highly efficient, stable, and built to last.
- **Smart Shade Scanning**  
Features intelligent shade scanning to automatically lock the maximum power point (MPP), yielding substantial efficiency gains, especially under heavy shading.
- **Ultra-Wide Input Voltage**  
PV input voltage range of 120V-750V, allowing 3 to 15 panels per string and up to 30 panels total, for greater system design flexibility. Enhanced low-temperature heating with stable output down to -38°C.
- **Isolation and Disconnect**  
Features isolation function that automatically disconnects PV DC input when the MPPT is inactive, enhancing overall safety.
- **Insulation Detection**  
Insulation impedance detection identifies wiring damage or leakage, allowing automatic PV shutdown to protect the inverter.
- **Three-Stage Lightning Protection**  
Equipped with DC three-stage lightning protection to fully guard the MPPT against lightning strikes, ensuring durability.



## Still worried your solar can't keep up at night or on cloudy days?

Sunny days: PV power takes over when solar output matches or exceeds the grid — your heating runs on almost zero electricity cost.



Cloudy days: Solar first, grid as backup — stable comfort with consistently low bills.



Night time: Smart switchover to grid power, making full use of heat stored with cheaper off-peak electricity.



## Electricity + air + sun: triple green energy

Traditional air-source heat pump: 1 part electricity + 2–3 parts heat from the air.  
PV direct-drive air-source heat pump: that 1 part electricity now also comes largely from solar PV, upgrading from “using clean electricity” to “heating with sunshine”.

## Fewer conversions, higher efficiency

DC power generated by the PV panels drives the heat pump compressor directly, reducing AC/DC conversion losses. With the same PV installation area, you can produce more usable heat output.

## Daytime self-consumption, sharply lower electricity bills

Heating demand typically peaks during the daytime and early evening, which coincides with PV generation. A portion of the heating energy comes directly from the sun, reducing dependence on grid electricity and cutting your energy bills.





**GOODHEAT** is **GOODWE** Group's flagship move into the heating and cooling market.

As a global leader in solar PV and energy storage, **GOODWE** has been asking itself for years:

“What if we didn't just help people produce clean electricity, but also helped them use that electricity in a smarter way?”

That vision became **GOODHEAT** — turning every beam of sunlight on your roof into cozy, comfortable indoor heat.

**From cozy heating in the coldest winter, to refreshing cooling in the height of summer, to reliable hot water all year round — GOODHEAT is built to take care of your building's comfort with one integrated system.**

We believe true comfort shouldn't mean wasting energy, and it certainly doesn't have to conflict with low-carbon living.

With PV direct-drive air source heat pumps, GOODHEAT connects clean generation with high-efficiency consumption in a seamless loop, making sure every kilowatt-hour and every ray of sunlight is used where it matters most.



## R290 PV Direct-Driven Residential Air to Water Heat Pump



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**PV**  
SERIES

### 1. PV & Grid Energy Management

- Full DC inverter photovoltaic direct-drive system
- PV monitoring: PV input voltage, input current, output voltage, output power and cumulative PV generation
- Grid monitoring: grid input voltage, input current, input power and cumulative electricity consumption
- Supports peak-valley electricity use and PV-ready / SG-ready operation

### 2. Operating Modes & Comfort

- Multiple modes: space heating, cooling, domestic hot water and floor heating
- Each mode with three running states: Standard, Powerful and Silent
- Multi-period timer and time-of-day temperature control
- Climate curve (weather compensation) control for stable indoor comfort

### 3. Smart Control & Connectivity

- Full-touch TFT display with multi-language interface
- Operation curve recording and room temperature control via panel
- Built-in 4G module, Wi-Fi, IoT connectivity and OTA remote upgrade

### 4. System Integration & Sensors

- Compatible with solar thermal and other multi-energy coupling solutions
- Equipped with refrigerant (R290) sensors for precise system monitoring

### 5. Safety & Protection

- Comprehensive protections: high / low pressure protection, discharge over-temperature protection, water flow protection, sensor fault protection, anti-freeze protection and more.

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## R290-SPECIFICATION (1)

Capacity	6kW	8kW	10kW	12kW	13kW
Model	GSWTH-10AA1	GSWTH-12AA1	GSWTH-14AA1	GSWTH-16AA1	GSWTH-18AA1
Power Supply	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz	380-415V/3N~50Hz
PV Max. Input Current	A 18	A 18	A 18	A 18	A 18
Optimal PV Input Voltage Range	V 180-350	V 180-350	V 180-350	V 180-350	V 360-500
Recommended PV Module Qty. (500W/50.2V)	PCS 6	PCS 7	PCS 8	PCS 8	PCS 9
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	1,077 (2.63-12.13)	1,254 (3.19-12.50)	1,264 (3.19-12.50)	1,286 (3.19-12.50)
	Power Input	1,139 (0.94-2.28)	2,070 (0.89-3.55)	2,070 (0.89-3.55)	2,450 (0.89-4.06)
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	5,107 (4.20-5.85)	4,953 (0.90-5.30)	4,953 (0.90-5.30)	4,881 (3.85-5.20)
	Power Input	5,909 (2.19-8.13)	10,071 (0.85-11.75)	10,071 (0.85-11.75)	11,556 (0.85-13.35)
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	1,877 (1.89-2.02)	2,651 (1.13-3.07)	3,121 (1.26-4.55)	3,711 (1.20-5.01)
	Power Input	3,200 (2.20-3.46)	3,183 (0.83-3.49)	3,232 (0.78-3.57)	3,116 (0.78-3.57)
Cooling Capacity (Max) (at 35°C outdoor/24°C indoor/17°C)	kW	2,001 (1.28-5.20)	2,001 (0.85-3.48)	2,001 (0.85-3.48)	2,001 (0.85-3.48)
	Power Input	1,777 (0.87-2.44)	3,011 (1.2-3.51)	3,011 (1.2-3.51)	3,681 (1.2-3.97)
EER	/	3.82 (1.89-3.20)	2.82 (1.00-3.10)	2.82 (1.00-3.10)	2.73 (1.19-3.00)
ERP Level (Outlet water temp. at 35°C/55°C)	/	A+++	A+++	A+++	A+++
Rated Input Power	kW	3.6	4.65	5.05	5.45
Rated Input Current	A	16.0	20.4	23.0	25.0
Refrigerant Type / Charge / GWP	.../kg	R290 / 0.85 / 3	R290 / 1.00 / 3	R290 / 1.00 / 3	R290 / 1.00 / 3
Rated Water Flow	m <sup>3</sup> /h	1.00	1.37	1.7	2.06
Water Pressure Drop	kPa	20	20	20	20
Fan Quantity	/	1	1	1	2
Fan Motor Type	/	DC Inverter	DC Inverter	DC Inverter	DC Inverter
Compressor	/	Inverter type / Built-in	Inverter type / Built-in	Inverter type / Built-in	Inverter type / Built-in
IP Class	/	IPX4	IPX4	IPX4	IPX4
Max. Outlet Water Temp.	°C	75	75	75	75
Operating Temperature Range (Heating mode)	°C	-25~9	-25~9	-25~9	-25~9
Operating Temperature Range (Cooling mode)	°C	16~45	16~45	16~45	16~45
Sound Pressure at 1m Distance	dB(A)	41 (39-51)	44 (39-52)	44 (39-52)	46 (39-52)
Sound Pressure at 3m Distance	dB(A)	35 (32-44)	37 (32-45)	37 (32-45)	39 (32-45)
Water Piping Connections	Inch	1/2	1/2	1/2	1/2
Unpacked Weight	kg	110	129	145	165
Packed Weight	kg	115	135	165	185
Unpacked Dimensions (L x D x H)	mm	1230 x 660 x 950			
Packed Dimensions (L x D x H)	mm	1230 x 660 x 1084			

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

## R290-SPECIFICATION (2)

Capacity	14kW	16kW	18kW	20kW	24kW
Model	GSWTH-14AA1	GSWTH-16AA1	GSWTH-18AA1	GSWTH-20AA1	GSWTH-24AA1
Power Supply	380-415V/3N~50Hz	380-415V/3N~50Hz	380-415V/3N~50Hz	380-415V/3N~50Hz	380-415V/3N~50Hz
PV Max. Input Current	A 15	A 15	A 15	A 15	A 15
Optimal PV Input Voltage Range	V 180-350	V 180-350	V 180-350	V 180-350	V 360-500
Recommended PV Module Qty. (500W/50.2V)	PCS 10	PCS 10	PCS 10	PCS 10	PCS 10
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	1,626 (4.15-14.51)	1,838 (4.17-14.51)	1,838 (4.17-14.51)	1,838 (4.17-14.51)
	Power Input	3,306 (1.28-4.83)	3,306 (1.28-4.83)	3,306 (1.28-4.83)	3,306 (1.28-4.83)
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	4,791 (3.75-5.00)	4,791 (3.75-5.00)	4,791 (3.75-5.00)	4,791 (3.75-5.00)
	Power Input	5,586 (1.45-5.89)	5,586 (1.45-5.89)	5,586 (1.45-5.89)	5,586 (1.45-5.89)
Heating Capacity (Max) (at 7°C outdoor/5°C)	kW	5,306 (4.32-5.46)	5,306 (4.32-5.46)	5,306 (4.32-5.46)	5,306 (4.32-5.46)
	Power Input	6,092 (1.45-6.49)	6,092 (1.45-6.49)	6,092 (1.45-6.49)	6,092 (1.45-6.49)
Cooling Capacity (Max) (at 35°C outdoor/24°C indoor/17°C)	kW	2,138 (0.93-13.51)	2,138 (0.93-13.51)	2,138 (0.93-13.51)	2,138 (0.93-13.51)
	Power Input	4,606 (1.45-5.01)	4,606 (1.45-5.01)	4,606 (1.45-5.01)	4,606 (1.45-5.01)
EER	/	2.83 (1.98-3.05)	2.83 (1.98-3.05)	2.83 (1.98-3.05)	2.73 (1.98-2.88)
ERP Level (Outlet water temp. at 35°C/55°C)	/	A+++	A+++	A+++	A+++
Rated Input Power	kW	6.95	6.95	6.95	6.95
Rated Input Current	A	30.5	30.5	30.5	30.5
Refrigerant Type / Charge / GWP	.../kg	R290 / 1.65 / 3	R290 / 1.65 / 3	R290 / 1.65 / 3	R290 / 1.65 / 3
Rated Water Flow	m <sup>3</sup> /h	2.75	2.75	2.75	2.75
Water Pressure Drop	kPa	55	55	55	55
Fan Quantity	/	1	1	1	2
Fan Motor Type	/	DC Inverter	DC Inverter	DC Inverter	DC Inverter
Compressor	/	Inverter type / Built-in	Inverter type / Built-in	Inverter type / Built-in	Inverter type / Built-in
IP Class	/	IPX4	IPX4	IPX4	IPX4
Max. Outlet Water Temp.	°C	75	75	75	75
Operating Temperature Range (Heating mode)	°C	-25~9	-25~9	-25~9	-25~9
Operating Temperature Range (Cooling mode)	°C	16~45	16~45	16~45	16~45
Sound Pressure at 1m Distance	dB(A)	46 (39-55)	46 (39-55)	46 (39-55)	46 (39-55)
Sound Pressure at 3m Distance	dB(A)	41 (32-45)	41 (32-45)	41 (32-45)	41 (32-45)
Water Piping Connections	Inch	1/2	1/2	1/2	1/2
Unpacked Weight	kg	200	200	200	240
Packed Weight	kg	220	220	220	260
Unpacked Dimensions (L x D x H)	mm	1180 x 660 x 1315			
Packed Dimensions (L x D x H)	mm	1230 x 660 x 1440			

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

## R290 PV Direct-Driven Commercial Air to Water Heat Pump



**R**SERIES

### 1. PV Direct-Drive & High Efficiency Heating

- R290 full DC inverter photovoltaic direct-drive technology for high seasonal efficiency and low carbon footprint
- Commercial two-supply design, ideal for space heating and high-temperature hot water applications

### 2. Wide Operating Range & High Temperature Output

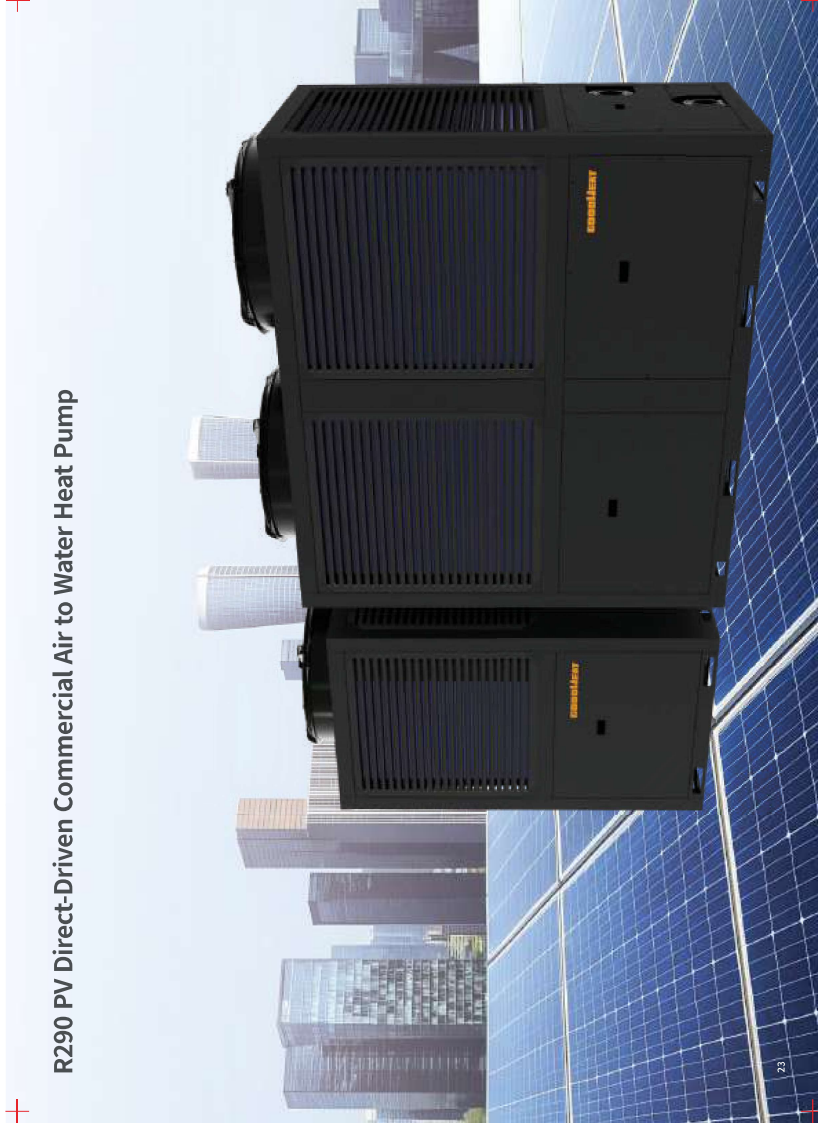
- Enhanced Vapor Injection (EVI) technology for strong performance in cold climates
- Stable operation at ambient temperatures down to -25°C
- Outlet water temperature up to 75°C, suitable for radiators and commercial DHW systems

### 3. Smart Control & User Interface

- Smart full-color touch screen for intuitive local operation and parameter viewing
- Remote control via WIFI + APP for monitoring and setting adjustment anytime, anywhere

### 4. Connectivity, Grid Interaction & Remote Service

- Optional built-in 4G module for flexible networking without on-site wiring
- SG-Ready function for smart grid and PV energy management integration
- OTA remote software upgrade system to keep the unit up to date without
- Web-based Product Management Center (IoT cloud platform) for fleet-level monitoring, data analysis and remote management



## R290-SPECIFICATION (1)

Model	ESHTYP:075441	ESHTYP:075441
Power Supply	300V~415V/50/60Hz	300V~415V/50/60Hz
Power Max. Input Current	A	A
Optimal PV Input Voltage Range	V	V
Recommended PV Module Qty. (S/W/50.2V)	PCS	PCS
Nominal Heating Max. (A/7°C, W/75°C)	18.50~30.50	18.50~30.50
Heating Capacity (kW)	3.95~14.80	3.95~14.80
COP1	3.3~4.70	3.3~4.70
Nominal Heating Absor. (A/7°C, W/75°C)	10.05~40.00	10.05~40.00
Heating Capacity (kW)	3.74~13.79	3.74~13.79
COP2	3.02~3.52	3.02~3.52
Nominal Cooling Max. (A/32°C, W/17°C)	10.15~26.50	10.15~26.50
Cooling Capacity (kW)	3.03~12.95	3.03~12.95
EER	2.20~2.70	2.20~2.70
Max Power Input (kW)	30.3	30.3
Max Current (A)	35.0	35.0
ERF level (S/C) (S/C)	A++/A++	A++/A++
Maximum Allowable Pressure	MPa	MPa
Refrigerant	R290/146	R290/146
Electrical Shockproof	/	/
Compressor quantity	1	1
Fan motor quantity	1	1
Fan motor type	DC	DC
Expansion valve	EEV/ambua	EEV/ambua
Air Flow Direction	Vertical	Vertical
IP class	IP44	IP44
Water Flow Volume (m³/h)	6.0	6.0
Water Pressure Drop (MPa)	0.5	0.5
Working temperature range (°C)	-25~46	-25~46
Noise (dB(A))	35 (30-35)	35 (30-35)
Water connection	G1-1/2	G1-1/2
Net Weight (kg)	448	448
Dimensions (L×W×H) (mm)	1100×1100×2150	1100×1100×2150
Packing (L×W×H) (mm)	1144×1144×2250	1144×1144×2250

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

## R290-SPECIFICATION (2)

Model	ESHTYP:075441	ESHTYP:10041
Power Supply	300V~415V/50/60Hz	300V~415V/50/60Hz
Power Max. Input Current	A	A
Optimal PV Input Voltage Range	V	V
Recommended PV Module Qty. (S/W/50.2V)	PCS	PCS
Nominal Heating Max. (A/7°C, W/75°C)	25.00~76.0	25.00~76.0
Heating Capacity (kW)	5.75~21.71	5.75~21.71
COP1	3.35~4.65	3.3~4.62
Nominal Heating Absor. (A/7°C, W/75°C)	19.85~67.27	19.85~67.27
Heating Capacity (kW)	6.19~26.91	6.19~26.91
COP2	2.90~3.38	2.90~3.38
Nominal Cooling Max. (A/32°C, W/17°C)	13.5~48.3	13.5~48.3
Cooling Capacity (kW)	6.81~26.90	6.81~26.90
EER	2.00~2.45	2.00~2.45
Max Power Input (kW)	30.5	30.5
Max Current (A)	34.5	34.5
ERF level (S/C) (S/C)	A++/A++	A++/A++
Maximum Allowable Pressure	MPa	MPa
Refrigerant	R290/146	R290/146
Electrical Shockproof	/	/
Compressor quantity	2	2
Fan motor quantity	2	2
Fan motor type	DC	DC
Expansion valve	EEV/ambua	EEV/ambua
Air Flow Direction	Vertical	Vertical
IP class	IP44	IP44
Water Flow Volume (m³/h)	9.0	9.0
Water Pressure Drop (MPa)	0.5	0.5
Working temperature range (°C)	-25~46	-25~46
Noise (dB(A))	62 (54-72)	62 (54-72)
Water connection	Flange DN60	Flange DN60
Net Weight (kg)	760	760
Dimensions (L×W×H) (mm)	2300×1600×2250	2300×1600×2250
Packing (L×W×H) (mm)	2300×1600×2385	2300×1600×2385

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

## R290 PV Direct-Driven Top Discharge Heat Pump Water Heater



- 1. PV Direct-Drive & Energy Monitoring**
  - DC R290 PV direct-drive side-discharge system to cut grid use and running cost
  - Display PV voltage / current / power and cumulative PV generation
  - Display mains voltage / current / power and cumulative electricity consumption
- 2. Operating Modes & Comfort Control**
  - Standard, Silent, Powerful and Electric Heating modes
  - Time-segment temperature and timer control to match different usage habits
- 3. Smart Control & Connectivity**
  - Full-touch TFT with multi-language UI for easy operation
  - 5G-ready & PV-ready, supports multi-energy coupling (e.g. solar thermal)
  - 4G / WiFi / IoT and OTA for remote monitoring and software upgrades
- 4. Hygiene, Defrost & Safety Protection**
  - Manual / automatic sterilization for hygienic hot water
  - Manual / automatic defrost for reliable low-temperature operation
  - Refrigerant leak sensor and multiple protections (high / low pressure, over-temp, water flow, anti-freeze, sensor fault)
- 5. Top Discharge Design Advantages**
  - Vertical top-discharge airflow minimizes side clearance requirements, ideal for tight lateral spaces
  - Hot air is discharged upward, reducing short-circuiting and improving overall heat exchange efficiency
  - Well-suited for balconies, corridors, narrow rooms, rooftops and compact plant rooms



## R290-SPECIFICATION (1)

HEAT PUMP PARAMETERS		300L
Installation Type:		Floor-standing
Power Supply:		220-240V/50/60Hz
Water Tank Volume:	l	200
Water Tank Capacity:	l	200
Normal Heating Capacity:	kW	1.6
Energy Class:		A+
Heating Capacity at 47°C/COP:	kW	1.50
Heating Capacity at 47°C/COP:	kW	1.50
Heating Capacity at 47°C/COP:	kW	1.50
Standby Power Input (I <sub>sc</sub> ):	W	30
Water Heating Energy Efficiency:	W	150.00%
Refrigerant Charge:	kg	4250/150g
Sound Power Level:	dB(A)	50
Sound Power Level:	dB(A)	50
Max. Water Outlet Temp. (with tank heater):	°C	70
Max. Water Outlet Temp. (with tank heater):	°C	70
Max. Water Outlet Temp. (with tank heater):	°C	70
Operation Range:	°C	-7-43
Water Outlet Temp. setting range:	°C	30-70
Rated Power:	W	900-1600 (c-heater)
Rated Current:	A	3.9-7.1 (c-heater)
Rated Voltage:	V	220-240
Alt. Flow:	m <sup>3</sup> /h	450
Unit Protection Indoor Unit (IP-X):		IP24
TANK:		
Inner Tank Material:		Stainless Steel
Inner Tank Thickness:	mm	1.2
Insulation Material:		Polyurethane
Thickness of The Tank Insulation:	mm	50
Outer Tank Thickness:	mm	0.6
Coating Thickness of The Tank Cover:	mm	0.5
Drum Diameter:	mm	150
CONNECTIONS AND DIMENSIONS:		
Water Outlet:	inch	G 3/4
Water Inlet:	inch	G 3/4
Size of Water Drain:	inch	G 3/4
Net Dimensions (D x H):	mm	4050 x 1720
Packing Dimensions (L x W x H):	mm	6000 x 600 x 1850
Net Weight:	kg	80
Gross Weight:	kg	90
Loadings, quantity of 20GP:	pcs	27
Loadings, quantity of 40GP:	pcs	54

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

(\*) Heating tank power input is based on the following conditions:  
 (\*\*) Heating tank power input is based on 20°C/15°C. Water temperature from 15°C to 55°C.  
 (\*\*\*) Capacities and heating time based on EN12182 (4.7) for Stage A.  
 (\*\*\*\*) COP and Energy Class based on EN12182 (4.7) for Stage C, with tapping cycle M / L / AL.  
 (\*\*\*\*\*): Noise is tested according to EN 12182, with water 50°C.  
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 (\*\*\*\*\*) Noise is tested according to EN 12182, with water 50°C.

## R290-SPECIFICATION (2)

HEAT PUMP PARAMETERS		300L
Installation Type:		Floor-standing
Power Supply:		220-240V/50/60Hz
Water Tank Volume:	l	200
Water Tank Capacity:	l	200
Normal Heating Capacity:	kW	1.6
Energy Class:		A+
Heating Capacity at 47°C/COP:	kW	1.50
Heating Capacity at 47°C/COP:	kW	1.50
Heating Capacity at 47°C/COP:	kW	1.50
Standby Power Input (I <sub>sc</sub> ):	W	30
Water Heating Energy Efficiency:	W	150.00%
Refrigerant Charge:	kg	4250/150g
Sound Power Level:	dB(A)	50
Sound Power Level:	dB(A)	50
Max. Water Outlet Temp. (with tank heater):	°C	70
Max. Water Outlet Temp. (with tank heater):	°C	70
Max. Water Outlet Temp. (with tank heater):	°C	70
Operation Range:	°C	-7-43
Water Outlet Temp. setting range:	°C	30-70
Rated Power:	W	900-1600 (c-heater)
Rated Current:	A	3.9-7.1 (c-heater)
Rated Voltage:	V	220-240
Alt. Flow:	m <sup>3</sup> /h	450
Unit Protection Indoor Unit (IP-X):		IP24
TANK:		
Inner Tank Material:		Stainless Steel
Inner Tank Thickness:	mm	1.2
Insulation Material:		Polyurethane
Thickness of The Tank Insulation:	mm	50
Outer Tank Thickness:	mm	0.6
Coating Thickness of The Tank Cover:	mm	0.5
Drum Diameter:	mm	150
CONNECTIONS AND DIMENSIONS:		
Water Outlet:	inch	G 3/4
Water Inlet:	inch	G 3/4
Size of Water Drain:	inch	G 3/4
Net Dimensions (D x H):	mm	4050 x 1820
Packing Dimensions (L x W x H):	mm	7200 x 1900
Net Weight:	kg	81
Gross Weight:	kg	91
Loadings, quantity of 20GP:	pcs	24
Loadings, quantity of 40GP:	pcs	48

Note: The data above is for reference only. Please refer to the nameplate on the unit for more specific data.

(\*) Heating tank power input is based on the following conditions:  
 (\*\*) Heating tank power input is based on 20°C/15°C. Water temperature from 15°C to 55°C.  
 (\*\*\*) Capacities and heating time based on EN12182 (4.7) for Stage A.  
 (\*\*\*\*) COP and Energy Class based on EN12182 (4.7) for Stage C, with tapping cycle M / L / AL.  
 (\*\*\*\*\*): Noise is tested according to EN 12182, with water 50°C.  
 (\*\*\*\*\*) Noise is tested according to EN 12182, with water 50°C.  
 (\*\*\*\*\*) Noise is tested according to EN 12182, with water 50°C.  
 (\*\*\*\*\*) Noise is tested according to EN 12182, with water 50°C.

## R290 PV Direct-Driven Side Discharge Swimming Pool Heat Pump



### 1. PV Direct-Drive & Efficiency

- Full DC R290 photovoltaic direct-drive reduces conversion losses and grid dependence.
- High efficiency with COP  $\geq 22$ , helping to cut energy use and running cost.

### 2. PV & Grid Energy Monitoring

- PV side: displays PV input voltage / current, output voltage / power and cumulative PV generation.
- Grid side: displays mains voltage / current / power and cumulative electricity consumption.

### 3. Operating Modes & Comfort Control

- 7 modes: Standard / Powerful / Silent heating, Standard / Powerful / Silent cooling, plus Auto.
- Multi-period timer and time-segment temperature control to match different usage habits and save energy.

### 4. Smart Energy Management & Connectivity

- Supports multi-energy coupling with solar thermal and other sources; SG-ready and PV-ready.
- 4G, WiFi, IoT and OTA enable remote monitoring, parameter adjustment and software upgrades.

### 5. User Interface

- Full-touch TFT screen with multi-language display for easy, intuitive operation.

### 6. Safety & Protection

- Refrigerant leak sensor and multiple protections: high / low pressure, discharge over-temp, water flow, anti-freeze and sensor fault.

## R290-SPECIFICATION (1)

Model	GSPVSH-1DA1	GSPVSH-1DA1	GSPVSH-1AA1	GSPVSH-1TA1	GSPVSH-2DA1	GSPVSH-2AA1
Advised Pool Volume (m <sup>3</sup> )	18-35	25-40	30-50	35-60	40-65	45-70
Operating Air Temperature (°C)	-20~43	-20~43	-20~43	-20~43	-20~43	-20~43
Performance Condition: Air 25°C, Water 25°C, Humidity 80%						
Heating Capacity (kW)	8.5-12.3	12-20	14-25	16.5-42	20-50	22.5-58
Power Input (kW)	0.1-1.25	0.13-1.54	0.15-1.84	0.18-2.23	0.22-2.7	0.25-3.04
PV Max. Input Current (A)	18	18	18	18	18	18
Optimal PV Input Voltage Range (V)	80-310	80-310	80-310	80-310	80-310	120-310
Recommended PV Module Qty. (530W/552.2V) (pcs)	3	3	4	4	5	6
COP	23.2-7.6	23.5-7.8	23.2-7.6	23.2-7.4	23.2-7.4	23.2-7.4
Performance Condition: Air 15°C, Water 25°C, Humidity 60%						
Heating Capacity (kW) in Turbo Mode	6.5-1.63	8.6-2.15	9-2.25	11-2.35	13.5-3.38	15.5-3.88
Power Input (kW)	0.2-1.2	0.24-1.51	0.27-1.7	0.31-2.12	0.42-2.65	0.48-2.32
COP	8.05-4	8.05-7	8.2-5.3	8.8-5.2	8.5-5.1	8.1-5.3
Performance Condition: Air 25°C, Water 28°C, Humidity 80%						
Cooling Capacity (kW) (Optional)	4.5	5.5	6.5	8.5	10	11.5
Power Supply	220-240V/50Hz					
Sound Pressure at 1m (dB(A))	36-64.4	37-74.8	37.8-84.9	41-86.7	43.5-91.3	45.9-98.5
Sound Pressure at 10m (dB(A))	10.6-23.4	17.7-24.8	17.8-25.9	21-26.7	21.2-27.3	21.9-29.5
Compressor	Twin-Rotary DC Inverter					
Heat Exchanger	Titanium Heat Exchanger					
Casing	Metal Casing					
Net Dimension L x W x H (mm)	880 x 240 x 590					
Package Dimensions L x W x H (mm)	930 x 400 x 710					
Note: The data above is for reference only. Please refer to the sample plate on the unit for more specific data.						

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## R290-SPECIFICATION (2)

Model	GSPVSH-2TA1	GSPVTH-2TA1	GSPVSH-3DA1	GSPVTH-3DA1	GSPVTH-4DA1
Advised Pool Volume (m <sup>3</sup> )	55-90	55-90	65-105	65-105	75-120
Operating Air Temperature (°C)	-20~43	-20~43	-20~43	-20~43	-20~43
Performance Condition: Air 25°C, Water 25°C, Humidity 80%					
Heating Capacity (kW)	26.5-68	26.5-68	32-80	32-80	40-100
Power Input (kW)	0.30-3.58	0.30-3.58	0.35-4.41	0.35-4.44	0.41-5.55
PV Max. Input Current (A)	18	18	18	18	18
Optimal PV Input Voltage Range (V)	120-370	120-370	120-370	120-370	310-560
Recommended PV Module Qty. (530W/552.2V) (pcs)	6	8	7	8	9
COP	22.8-7.4	22.8-7.4	22.8-7.2	22.8-7.2	22.8-7.2
Performance Condition: Air 15°C, Water 25°C, Humidity 60%					
Heating Capacity (kW) in Turbo Mode	18-4.5	18-4.5	22.5-5.63	22.5-5.63	28.5-7.13
Power Input (kW)	0.54-3.46	0.54-3.46	0.69-4.33	0.69-4.33	0.88-5.7
COP	8.3-5.2	8.3-5.2	8.1-5.2	8.1-5.2	8.1-5.0
Performance Condition: Air 25°C, Water 28°C, Humidity 80%					
Cooling Capacity (kW) (Optional)	13	13	15	15	18.9
Power Supply	220-240V/50Hz				
Sound Pressure at 1m (dB(A))	380-415V/3N~50Hz				
Sound Pressure at 10m (dB(A))	39.7-49.8				
Compressor	Twin-Rotary DC Inverter				
Heat Exchanger	Titanium Heat Exchanger				
Casing	Metal Casing				
Net Dimension L x W x H (mm)	1092 x 445 x 742				
Package Dimensions L x W x H (mm)	1150 x 460 x 810				
Note: The data above is for reference only. Please refer to the sample plate on the unit for more specific data.					

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