VERSION20190322

KÖNNEN

SWIMMING POOL HEAT PUMP

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About Us

Zhejiang CEN New Energy Stock Co., Ltd. was established in year 2001, in the early time, the company mainly produces solar water heater controllers and other related products. In 2009, General Manager Xia Qing decided to transform the product, especially set up the heat pump department. The company began to focus on the production and sales of heat pump water heater products, and with the establishment of the water tank production workshop in 2013, formed a research and development, production and sales system of heat pump control system, heat pump water heater and water tank.

In the solar water heater control system, our company has maintained the top three level in China for a long time. In the field of heat pump water heaters, we started to enter the field of real estate engineering in 2017 and achieved remarkable results. In this field, our household heat pump water heaters Sales ranked second in the province.

In the international market, our products have passed the CE certification of the European Union by TUV, and the sales volume of our products is growing rapidly and steadily at a rate of 20%~30% per year.

In 2017, we successfully listed on the New Third Board and began to officially move into the capital market.
And moved into a new factory in the same year, with a total plant area of about 50,000 square meters.

Our GMPI-certified heat pump laboratory can test the unit's capacity from 1HP to 30HP, the minimum test ambient temperature can reach -30 degrees Celsius, and the highest test ambient temperature is 52 degrees Celsius.

Looking forward to the future, we will continue to focus on the broad heat pump field, making our own contribution to energy conservation and environmental protection, providing comfortable hot water for thousands of families.

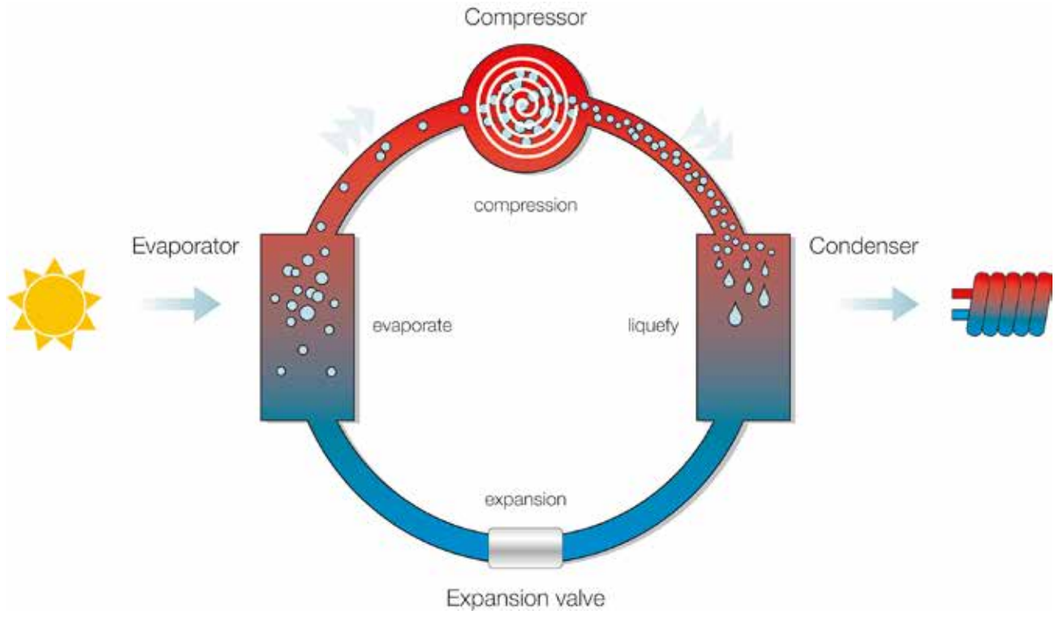
ISO9001-2015
Quality Management System for Quality Assurance
Certificate No.: ARES/CN/1701019Q

OHSAS18001:2007
Occupation Health Safety Management System
Certificate No.: 12816S20193ROS

ISO14001-2015
Environmental Management System
Certificate No.: ARES/CN/1706042E

Laboratory issued by GMPI
Certificate No.: RZ-ZL-2017171

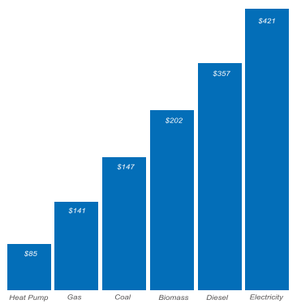
HEAT PUMP WORKING PRINCIPLE



Heat pump water heater extracts energy from the air and uses it to heat water.It uses 1 time power to drive the compressor and brings 4.3 times heat to the water.this is what we called coefficient of performance(COP). With COP up to 4.3.

ENERGY RESOURCE COMPARISON

The data on the following drawing are calculated on the basis of 20hrs/day in 120 days.



Operating Cost Comparison

Items	Heat Pump	Gas	Diesel	Electricity	Coal	Biomass
Calorific Value	860kcal/kW	8600kcal/L	10200kcal/L	860kcal/kW	5000kcal/Kg	4000
Unit Price	$0.1/kWh	$0.3/$m^3$	$0.9/L	$0.10/kWh	$0.075/Kg	0.20
Heating Load			200kW			
η	468%	85%	85%	95%	35%	85%
Consumption Per Hour	43kW/h	24m^3/h	20L/h	211kW/h	98Kg/h	51
Operating Cost Per Day	$85	$141	$357	$421	$147	$202
Operating Cost Per Year	$10256	$16941	$42851	$50526	$17691	$24282
Energy-Saving	/	19.05%	68.00%	72.86%	22.48%	43.52%

SWIMMING POOL HEAT PUMP

WAVE SERIES

PRODUCT FEATURES

Use stainless steel 304 material for heat exchanger side cover, fastener and other important parts etc.. Not easy to rust and corrosion, more durable.

Environmental protection refrigerant for option: protect atmospheric ozone layer, small pressure loss, stronger heating capacity, better heat transfer performance.

Use “Large Flow” system design, increase the amount of swimming pool water circulation, achieve quick and constant water temperature, reduce regional temperature difference.

Use high quality industrial titanium tube heat exchanger, the purity can each 99.8 percent, strong corrosion resistance, no scale deposit, not easy to be blocked.

Unique flow structure design to make fluid backset heat exchange, water will whirled with high speed in the heat exchanger, carry off the inner dirt in heat exchanger, increase the self cleaning ability of heat exchanger.

Use heat pump water heater professional compressor, wider operation rage, enhance the reliability greatly.

High precision electronic expansion valve: use electronic expansion valve to control, reach 500 steps adjustment, adjust super heat degrees accurately, achieve high efficiency operation system.

High COP up to 5.6 at working condition 24℃/19℃(DB/WB), saving electricity means saving money and protecting our earth.

Water flow switch has been fixed inside the titanium tube heat exchanger, better protection for longer service time.

Wifi function for option(Smart Apps on mobile phone).

Large water flow design, increase the amount of swimming pool water circulation, achieve quick and constant water temperature, reduce regional temperature difference.

Large air volume, low noise fan motor: Use airfoil shape, large chord, space distortion alloy blade, efficient internal rotor motor; High efficiency and compact.

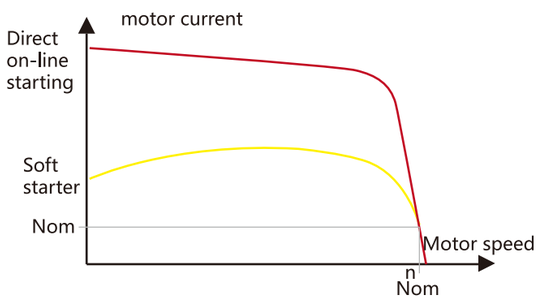
Centralized control: Modular combination control for at most 16 heat pumps, can be combined freely according to the required capacity.

Stainless steel 304 material for side cover of finned tube heat exchanger, for all fastener and other important parts, not easy to rust and corrosion, more durable.

Titanium tube heat exchanger: Adopt professional material of PVC for the shell, which meets the requirements of environmental protection ROHS. PPR material for option for pool temperature requirement higher than 45 deg C, long lifetime for the heat exchanger;One-step forming top cover and base cover, can work under pressure of 2.5Mpa;Pure titanium seamless tube, acid and alkali resistance, good corrosion resistance, can work under refrigeranpressure of 5.3Mpa.

The blue hydrophilic aluminum foil fin heat exchanger adopts cross-type multi-flow path design to make the heat exchange more uniform; the internal thread copper tube design has higher heat transfer efficiency; at the same time, the hydrophilic fins are not easy to form water droplets, Spreading into a uniform water film completely on the surface of fins, eliminates the generation of water bridges, which greatly improves the heat exchange capacity and heat exchange efficiency between the aluminum foil and the flowing air.

Low ODP refrigerant: R410a, other refrigerant for option.



Soft starter for option, reduce the starting current and starting stress, extend the service life of the motor and related equipment. Smooth start and soft stop avoid the surge problem and water hammer effect of traditional starting equipment.

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WAVE SERIES(SWIMMING POOL HEAT PUMP)															
		SP2.5PS-H2	SP03PS-E3	SP05PS-E5	SP03P-E3	SP05P-E5	SP07P-E5	SP10P-E10	SP14P-E10	SP20P-E20	SP24P-E20	SP30P-E20	SP40P-C96	SP48P-C96	SP60P-C96
Rated heating capacity（kW）		11.8	13.8	24.1	13.8	24.1	31.5	47.5	63.3	92.8	112.6	143.3	190.0	230.0	280.0
Rated input power（kW）		2.21	2.63	4.51	2.64	4.52	6.01	9.06	12.10	16.96	20.91	26.49	34.0	40.9	49.7
Rated input current（A）		12.82	15.36	25.93	5.01	8.61	11.94	17.51	23.04	32.91	40.42	50.58	65.0	77.9	94.5
COP		5.34	5.25	5.34	5.23	5.33	5.24	5.24	5.23	5.47	5.38	5.41	5.6	5.6	5.6
*Heating capacity（kW）		8.9	11.8	19.7	11.9	20.1	24.7	39.8	50.4	77.2	92.5	115.7	160.0	190.0	230.0
*Input power（kW）		1.86	2.47	4.14	2.45	4.12	5.18	8.30	10.57	15.66	18.77	23.81	30.5	36.0	44.1
*Input current（A）		10.66	14.24	23.65	4.70	7.82	9.85	15.98	20.12	29.85	35.65	45.35	58.0	68.9	83.7
*COP		4.78	4.78	4.76	4.86	4.88	4.77	4.80	4.77	4.93	4.93	4.86	5.3	5.3	5.2
**Cooling capacity（kW）		8.74	11.65	19.42	11.65	19.42	24.27	38.83	50.49	77.67	92.23	116.50	155.35	184.47	220.25
**Input power（kW）		2.33	3.08	5.06	3.04	5.08	6.34	10.25	13.25	20.39	24.21	30.66	40.98	48.92	58.27
**Input current（A）		12.26	16.22	26.61	5.78	9.66	12.04	19.47	25.18	38.73	46.00	58.25	77.87	92.96	110.67
**EER		3.75	3.78	3.84	3.83	3.82	3.83	3.79	3.81	3.81	3.81	3.80	3.79	3.77	3.78
Maximum input power（kW）		2.87	3.42	5.86	3.43	5.88	7.81	11.78	15.73	22.05	27.18	34.44	44.2	53.1	62.8
Maxmum input current（A）		14.05	16.33	27.60	5.92	10.13	14.20	20.32	28.88	40.19	48.65	62.67	81.8	99.0	120.2
Rated hot water output temperature（℃）		28													
Maximum hot water output temperature（℃）		40(45 or higher for option)													
Rated cooling water output temperature（℃）		27													
Power supply		1N 220V~240V/50Hz			3N 380V~420V/50Hz										
Compressor	Type	Rotor type	Hermetic scroll type												
	Start mode	Directly start(Soft starter for option)													
	Quantity Set	1	1	1	1	1	1	2	2	4	4	4	4	4	4
Water side heat exchanger	Type	PVC shell & Titanium tube heat exchanger(PPR for option)													
	Water flow（m³/h）	5.07	6.02	10.32	6.02	10.32	13.76	20.64	28.38	40.85	49.45	62.35	81.70	98.90	124.70
	Water pressure drop（KPa）	≤50						≤70							
	Pipe size（Φ）	Φ50	Φ50	Φ50	Φ50	Φ50	Φ50	Φ50	Φ50	Φ90	Φ90	Φ90	Φ110	Φ110	Φ110
Protections		1. High pressure and low pressure protection, 2. Anti-freezing protection, 3. High temperature protection, 4. Too big of the water temperature difference for outlet and inlet protection, 5. Overload protection, 6. Lack phase protection, 7. Reverse phase protection, 8. Water flow protection etc.													
Noise DB(A)		≤50	≤55	≤63	≤55	≤63	≤63	≤65	≤68	≤70	≤70	≤70	≤76	≤78	≤80
length（mm）		1000	700	820	700	820	820	1502	1502	1995	1995	1995	2000	2000	2000
width （mm）		360	700	695	700	695	695	750	750	1165	1165	1165	2050	2050	2050
height （mm）		630	870	1060	870	1060	1060	060	1060	1105	1105	1105	1980	1980	1980
Net Weight（kg）		64	100	160	100	160	190	255	400	600	725	855	1225	1260	1310

Testing condition:

1. Ambient temp.(DB/WB):24℃/19℃, Water temp.(In/Out):26℃/28℃.

2. *Ambient temp.(DB/WB):15℃/12℃, Water temp.(In/Out):26℃/28℃.

3. ** Cooling: Ambient temp.(DB/WB): 35℃/24℃; Water temp.(In/Out):29℃/27℃.

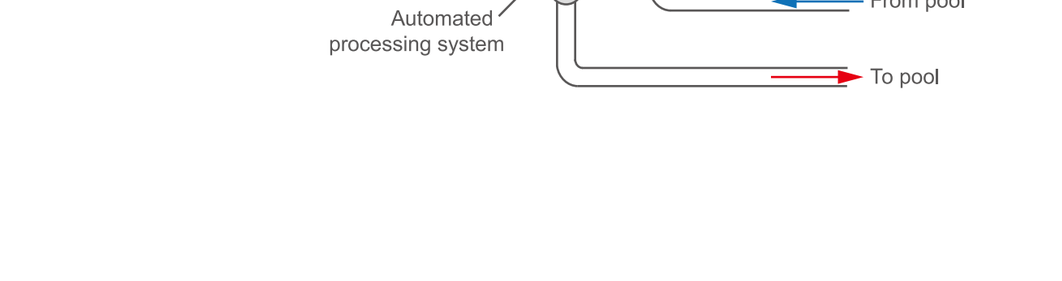
The above parameters are based on Refrigeamt R410A, for parameters based on other refrigerant please contact us.

The above parameters may have some differences from the final product because of products updating, so above information is not the provision of any business contract. Please refer to final product label when buy, or refer to us for any information. Our company keeps the right to interpret.

HEATING PERFORMANCE CORRECTION COEFFCIENT (%)

Ambient temperature (C)	-7	0	2	5	7	10	15	24	30
Heating capacity (%)	55.0	65.0	70.0	78.0	85.0	88.0	93.0	100.0	105.0
Power (%)	89.5	89.6	91.0	92.0	93.8	95.6	98.8	100.0	102.0
Energy efficiency ratio (COP) (%)	61.5	72.5	76.9	84.8	90.6	92.1	94.1	100.0	102.9

HEATING PERFORMANCE CORRECTION COEFFICIENT CHANGING CURVE



APPLICATIONS SKETCH