

Ultra-High Temperature Industrial Heat Pump

Hien®

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STEAM GENERATION
UP TO 125°C





ABOUT HIEN

Founded in 1992, Hien firstly started as an electronic component manufacturer. With a registered capital of 300 million RMB, Hien entered the air source industry in 2000. It is a leading enterprise of air source heat pumps in the area of product R & D, production, sales, and after-sales service. Hien owns one of the largest production bases of heat pumps in China, as well as the CANS certified state-level comprehensive laboratory.

PRODUCTION LINE

With a total of 60,000 m² of construction area and over 1,000 processing equipments, the main factory comprises 6 assembly lines, while the branch factory consists of 3 production workshops. Main products include air source heat pumps for residential, commercial, and industrial use. The capacity of our products ranges from 3 kW to 320 kW, primarily for heating, cooling, and domestic hot water. Heat pump dryers are also used for the production of tobacco, aroma wicks, medicinal herbs, tea, fruits, vegetables, and other products.

Your Application Solutions

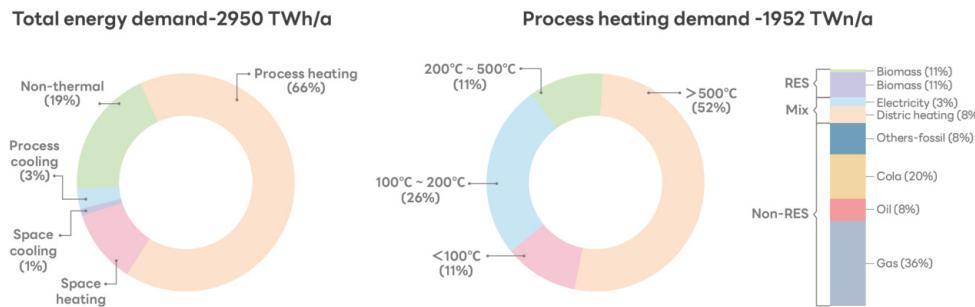
All heat pumps made by Hien and constructed specifically for a project and according to customer desires. Thus, a wide variety of applications can be implemented and integrated into new or existing designs.

PRINTING AND DYEING TEXTILE INDUSTRY	
RECYCLABLE WASTE HEAT	HEAT PUMP HEATING.
<ul style="list-style-type: none"> • Sewage. • Tail gas of setting machine. 	<ul style="list-style-type: none"> • Hot water/steam heating for washing machine. • Steam heating for dyeing vat.
BREWING / BEVERAGE / DAIRY INDUSTRY	
RECYCLABLE WASTE HEAT	HEAT PUMP HEATING.
<ul style="list-style-type: none"> • Condensation heat of alcohol vapor. • Cooling heat of air compressor. • CIP/Waste water from bottle washing machine. 	<ul style="list-style-type: none"> • Pasteurization. • High temperature tank of bottle washing machine.
PHARMACEUTICAL INDUSTRY	
RECYCLABLE WASTE HEAT	HEAT PUMP HEATING.
<ul style="list-style-type: none"> • Evaporation and concentration. • Drying exhaust gas. • Waste heat from crystallization refrigerators. 	<ul style="list-style-type: none"> • Hot water/steam for evaporation and concentration. • Steam for drying.
FOOD PROCESSING INDUSTRY	
RECYCLABLE WASTE HEAT	HEAT PUMP HEATING.
<ul style="list-style-type: none"> • Residual heat from drying. • Residual heat from the condenser of the refrigerator. • Waste heat from dehydrated wastewater. 	<ul style="list-style-type: none"> • Steam for cooking. • Sterilization and cleaning. • Heat supply for drying.

Energy Saving & Environmental Benefits

Current status of industrial heat energy

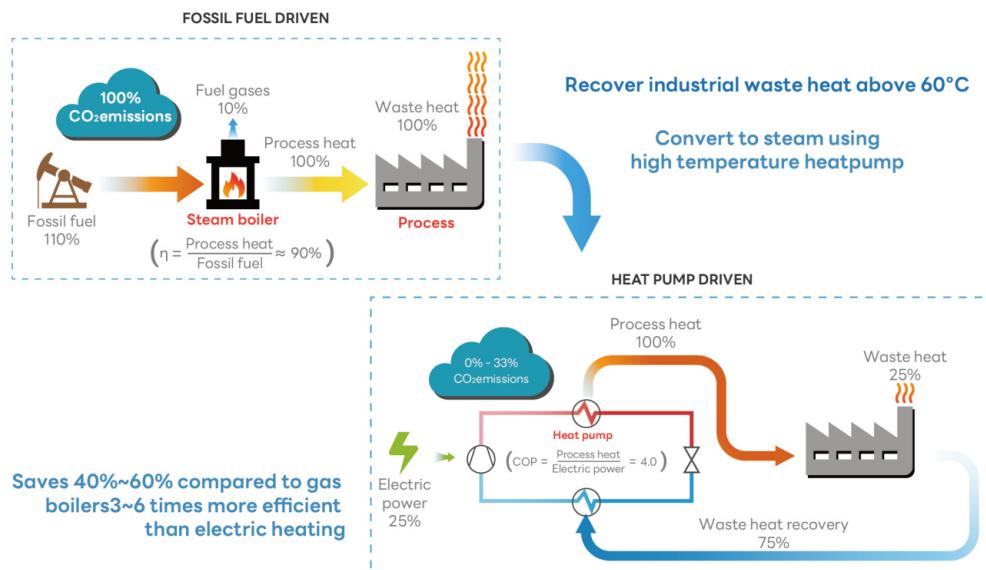
- About 37% of the industrial process heat is lower than 200°C
- The current industrial process heat demand is primarily (78%) covered by fossi



Significant Energy Saving

Compared with traditional gas or oil boilers, the High Temperature Steam Heat Pump can save up to 60% of energy consumption.

By utilizing low-grade waste heat and a small amount of electricity, it efficiently generates high-temperature steam without combustion.



Energy Saving & Environmental Benefits

Zero Carbon Emission at the Point of Use

The use of new generation refrigerant R1233zd(E) ensures extremely low global warming potential (GWP ≈ 1), minimizing the greenhouse effect and contributing to a cleaner environment. It helps enterprises meet increasingly strict environmental regulations and achieve sustainable production goals.

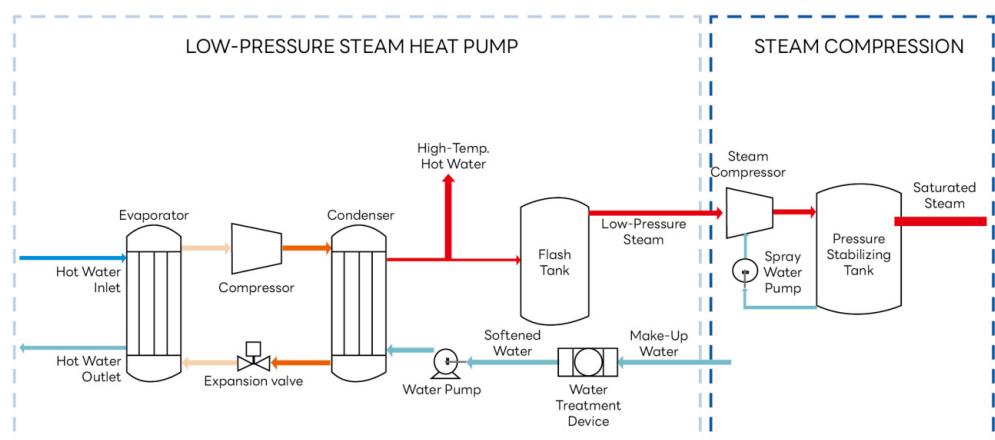
Lower Operating Cost

Electric-driven heat pump steam generation avoids fuel cost fluctuations and reduces operation & maintenance expenses. The payback period can be as short as 2-3 years depending on local energy prices and application conditions.



Principle of steam generation heat pump

High Temperature Heat Pumps (HTHPs) consume very little electrical power and convert a large amount of industrial waste heat into high-quality and valuable process heat. They can deliver either high-temperature hot water or steam, depending on the process requirements.



Ultra-high Temperature Industrial Heat Pump

High-Temperature Design

Designed for stable and efficient performance even under high-temperature operating conditions.

Smart PLC Control

Advanced PLC control enables remote monitoring, cloud connectivity, and smart grid operation.

Waste Heat Recovery (30–80°C)

Directly reuses low-grade waste heat from 30–80°C to save energy and reduce costs.

Standalone Steam up to 125°C

Produces steam up to 125°C independently for various industrial applications.

High Steam Temperature up to 170°C

Reaches up to 170°C steam temperature when combined with a steam compressor.

Low-GWP Refrigerant R1233zd(E)

Uses low-GWP refrigerant R1233zd(E) for high efficiency and environmental protection.

SUS316L Food-Grade Option

Name your device as you like for a truly personal experience.



Flexible System Configurations

Available in Water/Water, Water/Steam, and Steam/Steam variants for different needs.

Profitable Energy Recycling

Increase operational profit.
Recycle excess heat to steam.
Replace electrical or fossil fuel boilers.

Reliable and Proven Design

Built with a robust, field-tested design for reliable long-term performance.

Compatible with Air Source Heat Pumps

Easily integrates with air source heat pumps where waste heat is unavailable.

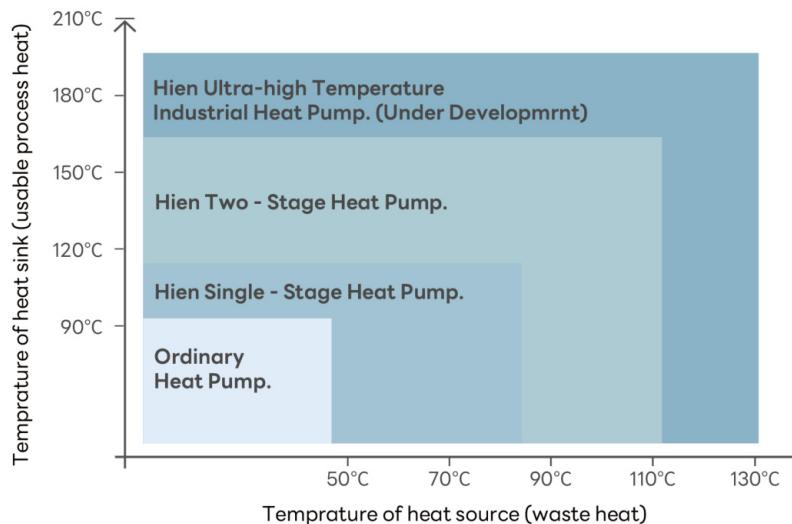
CO₂-Free Steam with Green Power

Generates carbon-free steam when powered by renewable electricity.

Power Consumption and COP

Steam Power Consumption of Industrial Heat Pump (kw/ton steam)																
Output SteamTemp.	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	
Output Steam Pressure/Bar.A	1	1.2	1.4	1.7	2	2.3	2.7	3.1	3.6	4.2	4.8	5.4	6.2	7	7.9	
Imported Water Temp.	Single Stage								Two Stage							
90	80	103	117	135	154	179	177	192	207	227	243	259	286	303	335	353
85	75	116	132	151	175	201	190	205	220	242	258	274	302	319	356	374
80	70	130	148	170	196	226	204	219	234	249	276	292	308	342	359	401
75	65	145	166	191	220	255	219	234	249	276	292	308	342	359	401	419
70	60	163	187	215	248	285	237	252	267	297	313	329	366	383	429	447
65	55	184	211	239	276	318	258	273	288	321	337	353	390	407	457	475
60	50	204	234	270	311	357	278	293	308	344	360	376	421	438	492	510
55	45	232	265	304	345	384	306	321	336	375	391	407	455	472	526	544
50	40	262	290	347	392	434	336	351	366	400	416	432	498	515	573	591

Industrial Heat Pump COP																
Output SteamTemp.	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	
Output Steam Pressure/Bar.A	1	1.2	1.4	1.7	2	2.3	2.7	3.1	3.6	4.2	4.8	5.4	6.2	7	7.9	
Imported Water Temp.	Single Stage								Two Stage							
90	80	6.65	5.87	5.11	4.49	3.87	3.93	3.63	3.38	3.09	2.89	2.72	2.47	2.33	2.21	2.01
85	75	5.91	5.21	4.57	3.95	3.45	3.66	3.40	3.18	2.90	2.73	2.57	2.34	2.22	1.99	1.90
80	70	5.27	4.64	4.06	3.53	3.07	3.41	3.18	2.99	2.72	2.57	2.43	2.20	2.09	1.88	1.80
75	65	4.72	4.14	3.61	3.14	2.72	3.18	2.98	2.81	2.54	2.41	2.29	2.06	1.97	1.77	1.70
70	60	4.20	3.68	3.21	3.79	2.43	2.93	2.77	2.62	2.36	2.25	2.14	1.93	1.85	1.65	1.59
65	55	3.72	3.26	2.88	3.51	2.18	2.70	2.55	2.43	2.18	2.09	2.00	1.81	1.74	1.55	1.50
60	50	3.36	2.94	2.55	2.22	1.94	2.50	2.38	2.27	2.04	1.95	1.87	1.68	1.62	1.44	1.39
55	45	2.95	2.59	2.27	2.00	1.81	2.27	2.17	2.08	1.87	1.80	1.73	1.55	1.50	1.35	1.31
50	40	2.61	2.37	1.99	1.76	1.60	2.07	1.99	1.91	1.75	1.69	1.63	1.42	1.37	1.24	1.20



Specifications



SSZR-60 II / IO

Power Supply.	380V/3N-/50HZ	Water Flow Resistance.	≤100 kPa
Rated Electrical protection.	I	Low Pressure Side.	3.0 Mpa(G)
Rated Waterproof.	IPX4	Max. Pressure On High.	3.0 Mpa(G)
Rated Heating Capacity.	63 kW	Soud Pressure Level.	78 dB (A)
Input Power.	20.9 kW	Refrigerant.	R1233zd(e)
Input Current.	37.5 A	Refrigerant Weight.	14500 g
Max.Input Power.	33.3 kW	Circulating Nozzle Size.	DN40*2
Max.Input Current.	64.8 A	Feeding Water Nozzle Size.	DN20*1
COP.	3.0	Steam Nozzle Size.	Φ50.5*32 mm
Steam Production.	80 (kg/h)	Net Size.	1846*1084*1762 mm
Feeding Water Temp.	20~100°C	Weight.	702 kg
Steam Temp. Range.	100~120°C	Heat Source Temp. Range.	40~65°C

The above parameters, if there are slight differences due to technical improvements, please refer to the relevant specifications of the actual product for accuracy.

The Main components.

COMPRESSOR :

Advanced fully enclosed scroll compressor — maintenance-free and equipped with an optimized motor cooling system for higher efficiency and reliability.



Maintenance-Free Design



High Reliability & Long Lifespan



Low Noise & High Efficiency



Compact & Fully Sealed Structure



FLASH TANK :

By utilizing the pressure difference between high-temperature hot water and low-pressure steam, the flash tank enables energy recycling within the system, improving overall efficiency and reducing heat loss.

Boosts Steam Quality, Enhances Efficiency.

Delivers dry, stable steam with maximum energy recovery.

The Main components.

HEAT EXCHANGER :

Advanced plate heat exchanger designed for low refrigerant charge and small temperature difference, achieving high heat exchange efficiency, compact design, and reliable long-term performance.



EXPANSION VALVE:

Innovative Design

Reliable for high temperatures.

Precise Control

Accurate flow regulation for stable performance.

Durable Structure

Strong materials for harsh conditions.

Energy Efficient

Reduced energy loss, higher system COP.

REFRIGERATION ACCESSORIES:

Pressure switches, subcooler, refrigeration piping within the unit including refrigeration accessories such as filter dryer, inspection glass, refrigerant collector with inspection glass and shut-off valve, refrigerant filling. new dimension regarding the reduction of the greenhouse effect so we can offer systems with the highest level of environmental friendliness.