

Five Solutions For Enterprise Hot Water Supply — Comparison of each advantages, investment and operating costs



Solar energy

Advantages

- ① Absorb sunlight heat
- ② Provide free energy
- ③ Simple system structure

Disadvantages

- ① In the winter and rainy day without thermal heating and electric heating will consume large amounts of electricity.
- ② Unable to provide short-term rapid heating
- ③ High initial investment costs
- ④ Temperature of 50-80 °C

Air compressor waste heat recovery

Advantages

- ① Providing free hot water in 24 hours
- ② Reducing the oil carbonization, aging of rubber tubing, shaft seal leakage and a series of failures of the air compressor caused by the high temperatures in summer which reduce compressor maintenance costs.
- ③ The temperature is raised to 75 °C
- ④ Without any additional power source later
- ⑤ Short-term quick heating

Disadvantages

- ① The initial one time investment is needed and requires the strong professional technical of air compressor.
- ② Demands of highly specialized automatic control switching system
- ③ Unable to provide heat during vacations and auxiliary heating is required



Compressor heat pump

Advantages

- ① Providing hot water in 24 hours
- ② Low initial investment cost and the maximum temperature rose to 85 °C

Disadvantages

- ① Electricity consumption

Direct electric heating

Advantages

- ① Compared to electric heating with better energy utilization results and Work Efficiency of 300% -400%
- ② Continue to heat hot water in 24 hours
- ③ Simple system structure

Disadvantages

- ① Consuming a lot of electricity continuously
- ② High initial investment costs
- ③ The need of maintenance costs
- ④ Can not provide short-term and rapid heating



Diesel boiler heating

Advantages

- ① Providing hot water in 24 hours
- ② The initial investment cost is low
- ③ Temperature up to 85 °C

Disadvantages

- ① Consuming a large amount of diesel and cause the air pollution in the dormitory area environment
- ② The maintenance costs are high

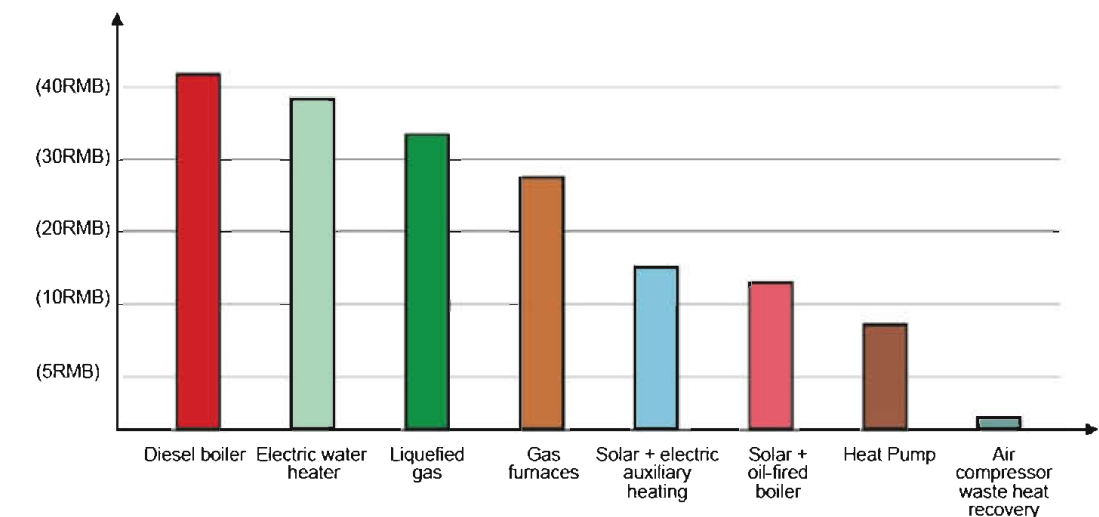
Each energy integrated performance and description comparison

Name	Energy	Thermal heat value	Thermal efficiency	Energy consumption	Cost	Environmental impact situation	Safety Performance
Diesel boiler	Diesel boiler	9181kcal/L	65%	6.0kg	42 RMB	Serious pollution	Fire, explosion and other safety hazards
Electric water heater	Electricity	860kcal	86%	54kw/h	39.42RMB	No pollution	Water contact with electricity with an electric shock hazard
Hot water tank	Liquefied gas	10800kcal/kg	65%	5.7kg	34.2 RMB	Combustion gas emissions	Leak, fire, explosion and other safety hazards
Gas furnaces	Natural gas	8400kcal/m ³	65%	7.3m ³	27.7 RMB	Combustion gas emissions	Leak, fire, explosion and other safety hazards
Solar energy+ electric auxiliary heating	solar power + electricity	Electric auxiliary 112 days		22.3ke/h	14.7 RMB	No	Water contact with electricity with an electric shock hazard
Solar energy + oil-fired boiler	Solar energy and diesel	Auxiliary fuel 112 days		2.9kg	13.2 RMB	Serious pollution	Leak, fire, explosion and other safety hazards
Heat Pump	Electricity	860kcal/kw/h	400%	11.6kw/h	8.46 RMB	No pollution	Electricity and water separated with safe and reliable
Air compressor waste heat recovery	Air compressor waste heat	75% of the electric compressor input power can be converted into heat recoverable	95%	0	0	No	Electricity and water separated with safe and reliable

Each energy prices: Electricity: RMB 0.73/kWh Liquefied gas: RMB 6/ kg Natural gas: RMB 3.8/m³

Light diesel oil: RMB 7/L Compressor waste heat recovery: RMB 0

Air compressor water heater cost analysis and comparison chart (cost comparison of heating 1 ton of water and temperature up to 40 °C)



Injected screw heat recovery direct thermal built-in units

Advantages

1. Built into air compressor , customized and integrally formed
2. Precise control of the oil temperature between 82-88
- 3 Air outlet temperature below
- 4 Lubricant consumption save 20%
- 5.compact and easy to maintain
6. Avoid pipeline Oil leaking
- 7.Economical and cost-effective



Model, Specification and Technical Data

22-75kw Built-in Units				
Model	SRPS-22XH-O-N	SRPS-37XH-O-N	SRPS-55XH-O-N	SRPS-75XH-O-N
Air compressor (kw)	22	37	55	75
Recovery efficiency (kw/h)	16	27.5	40	55
Single circulation pump output power (kw)	0.25	0.37	0.55	0.55
Inlet and out water temperature (°C)	Water temperature 5 °C, heating water 60 °C as reference			
maximum hot water output (kg/h)	244	400	588	800
Oil Tubing connector Diameter	DN25	DN25	DN25	DN25
Water pipe connector diameter	DN25	DN25	DN40	DN40
Size	Customized according to different brands compressor			
Reduced CO ₂ emissions (Ton/Year)	48	82.5	120	165
Saved electric cost (USD)	8.3	14.3	20.8	28.6

Injected screw heat recovery integration units

Advantages

- 1 Recycled water can be heated to 75 degree
2. Circulating pump comprising: a reverse-phase, phase protection, overload protection, water protection, When the oil temperature is too low, the pump can not start or stop control
3. Water pump comprising: a reverse-phase, phase protection, overload protection, water protection, Water supply pipeline system pressure control (no additional wiring) barrel temperature control loop
4. Display: compressor fan set start and stop oil circulating pump start and stop temperature for Heat pump start and stop temperature setting, cycle barrel level to scale
- 5 Circulating pumps, water pumps, integrated together, simple to install, easy to use, less installation of small distribution and control system
6. All parts are from famous brand, stable and reliable.



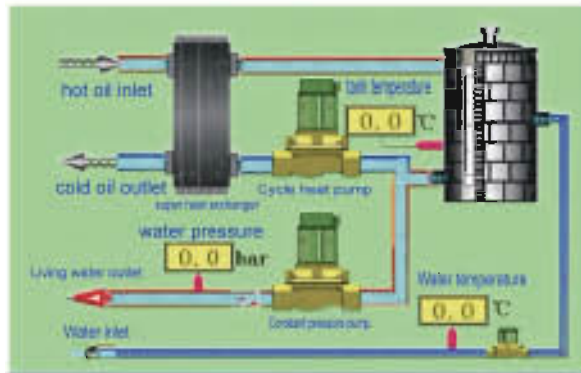
Model, Specification and Technical Data

22-75kw integration Units				
Model	SRPS-22XH-O-B	SRPS-37XH-O-B	SRPS-55XH-O-B	SRPS-75XH-O-B
Air compressor (kw)	22	37	55	75
Recovery efficiency (kw/h)	16	27.5	40	55
Single circulation pump output power (kw)	0.25	0.37	0.55	0.55
Inlet and out water temperature (°C)	Water temperature 5 °C, heating water 60 °C as reference			
maximum hot water output (kg/h)	244	400	588	800
Oil Tubing connector Diameter	DN25	DN25	DN25	DN25
Water pipe connector diameter	DN25	DN25	DN40	DN40
Size	900x450x800			
Reduced CO ₂ emissions (Ton/Year)	48	82.5	120	165
Saved electric cost (USD)	8.3	14.3	20.8	28.6

Standard Type Oil Injected Screw Heat Recovery Cycle Unit

Advantages

1. Recycled water can be heated to 75 °C
2. Circulating pump with functions of: a reverse-phase, phase protection, overload protection, water protection, start or stop control when oil temperature is too low of the air compressor.
3. Water pump with functions of: a reverse-phase, phase protection, overload protection, water protection, water supply pipeline system pressure control (no additional wiring), cycle barrel temperature control functions
4. Display: oil start and stop set of air compressor fan, start and stop temperature of the circulating pump, heat pump start and stop temperature setting, scale display of cycle barrel level
5. Installation is simple and convenient which can reduce the installation and construction of power distribution and control system
6. All adopt famous brand parts with complete protection function
7. Inlet and outlet oil temperature and water temperature display of the waste heat recovery group
8. Without any changes of the original compressor cooling system, water-cooled machine unit to change the cooling water flow
9. Display Setup of hot water pipeline pressure
10. 7 inches interface with highly integrated electronic control system and easy to operate



Technical parameters

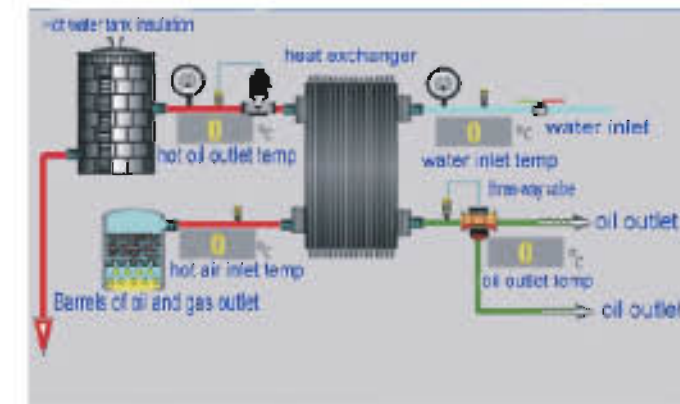
110-355Kw integrated type unit						
Model	SRPS-110XH-O-B	SRPS-110XH-O-B	SRPS-110XH-O-B	SRPS-110XH-O-B	SRPS-110XH-O-B	SRPS-110XH-O-B
Adaptation Compressor(Kw)	110	160	200	250	315	355
Recyclable power(kw/h)	80	120	150	185	235	266
Single with circulating pump(kw)	1.1	1.1	1.5	2.2	2	3.7
Water temperature (°C)	Water temperature 5 °C, 60 °C as the reference temperature					
The maximum hot water output (kw/h)	1190	1720	2150	2695	3360	3800
Oil connection	DN40	DN40	DN40	DN50	DN50	DN50
Water connection	DN50	DN50	DN50	DN65	DN80	DN80
Dimensions	1500x900x1200					
Reduce CO ₂ emissions (T/year)	246	360	450	555	705	798
Save electricity(RMB Ten Thousand/year)	42.6	62	78	96	122	138

NOTE: The water outlet temperature is better at 60 °C

Oil Injected Screw Heat Recovery Unit Standard Direct Thermal Unit

Advantages

1. Simple device structure with quick and easy installation
2. Zero energy consumption without additional electricity
3. Normal temperature water flow into the waste heat recovery system and then a steady supply of 75 °C hot water which no need the heating circulating water tank



Technical parameters

110-355Kw integrated type unit						
Model	SRPS-110ZR-O-B	SRPS-110ZR-O-B	SRPS-110ZR-O-B	SRPS-110ZR-O-B	SRPS-110ZR-O-B	SRPS-110ZR-O-B
Adaptation Compressor(Kw)	110	160	200	250	315	355
Recyclable power(kw/h)	80	120	150	185	235	266
Water temperature (°C)	Water temperature 5 °C, 60 °C as the reference temperature					
The maximum hot water output (kw/h)	1190	1720	2150	2695	3360	3800
Oil connection	DN40	DN40	DN40	DN50	DN50	DN50
Water connection	DN50	DN50	DN50	DN65	DN80	DN80
Dimensions	1250x650x1180			1400x780x1200		
Reduce CO ₂ emissions (T/year)	246	360	450	555	705	798
Save electricity(RMB Ten Thousand/year)	42.6	62	78	96	122	138