SUNNIVA™

Create • Conserve • Sustain

Heat Pumps & Chillers by Sunniva
Designed & Manufactured in India

www.sunnivaencon.com

Director's Desk

Dear Customer/Channel Partner/ Friend,

It gives me immense pleasure to state that Sunniva in a short span of time has created a niche for itself. We offer a wide variety of heat pumps as per our customers' specifications and match their expectations in quality. We have an edge in designing and that has enabled us to execute challenging projects in a seamless way.

I sincerely appreciate all our channel partners for their constant support. We assure to be always on their side with the best of technology, price, marketing inputs and technical assistance.

I am also thankful to our clients for their patronage. We are committed to save energy, increase your ROI, reduce your carbon footprints and contribute to make this earth a greener planet.

Kashyap Anandpara
Founder

M.tech Mechanical
MBA Marketing

Member of

BNI IGSHPA ISHRAE GRIHA INSTITUTE OF INDIAN INTERIOR DESIGNERS

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Nishith Shah

With a strong experience of 37 years in the field of Heating, Drying and Combustion equipment, Nishith is a science and management graduate who oversees Sunniva's equipment manufacturing units.

Paras Shah

A qualified chemical engineer with 25 years of experience in execution and project management, Paras leads the Service and Execution Teams at Sunniva

Samkit Shah

With 7 years of experience in the Engineering field, Samkit heads the Sales and Marketing teams at Sunniva and specializes in providing energy conservation solutions.

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About us

Sunniva Encon is a Heat Pump and Chiller manufacturing company based out of Mumbai, India. We have a complete range of HVAC products catering to various industries since 2013 across India with production capacity of 100 machines per month and a focus on service and customer satisfaction. Our machines are well built for Indian conditions.

Vision

To be a world-class heat-pump and chiller manufacturer with all its allied products and services under one roof.

Mission

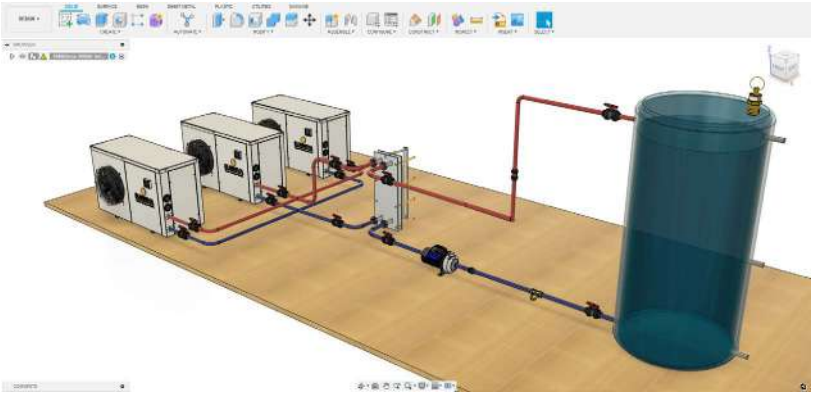
To be a leading provider of clean technologies in energy conservation, enabling our clients to reduce their carbon footprint with attractive ROI.

Certificates

Design

Our experience of over 30 years in manufacturing heating equipments has enabled us to design and build heat pumps and chillers with performance characteristics substantially superior to those available in the market.

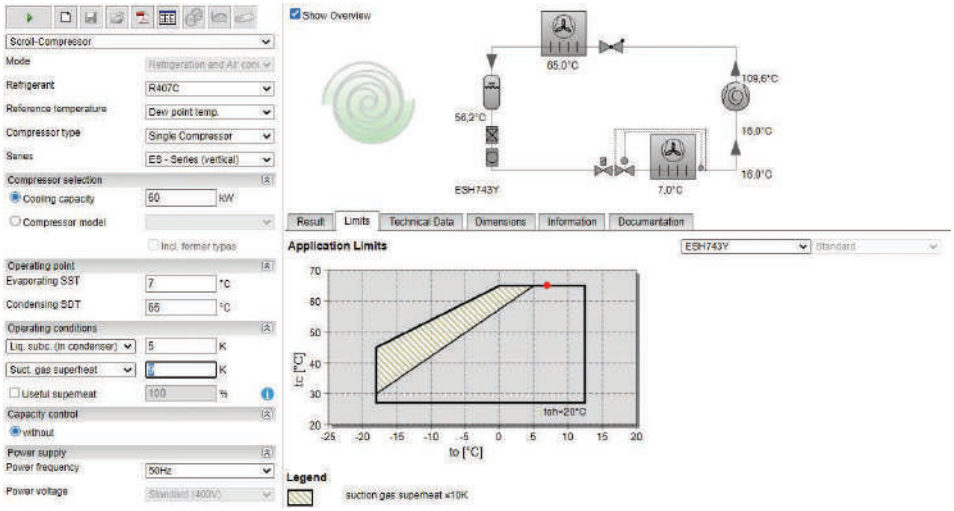
Our In-house Design team has designed highly efficient machines for Indian conditions. We are continuously evolving our system designs using advanced softwares to improve efficiency and life cycle of our machines even further.



Software

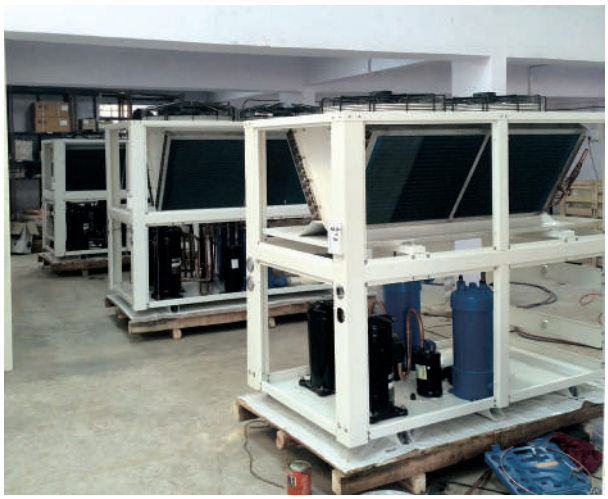
Selecting the components of a machines based on its application and capacity is the most crucial part of the process.

Our components are selected only based on either software or data sheets provided by the manufacturer. Software helps to select the compressor which is the heart of the machine. After selecting compressor, other components are selected.



Manufacturing

A state-of-the-art unit based in Asangaon, Maharashtra and a team with over 30 years of experience, Sunniva is an expert in designing and manufacturing of heat pumps and chillers. Exposure of Good Manufacturing Practice (GMP) from HVAC industry has helped us get EN14511 certification. Our products have a superior world-class quality which are much sought after in domestic, commercial and industrial sectors.



Main Components

Compressor

Scroll Compressor
The advantage of a scroll compressor is that it has fewer moving parts and less torque variation which offers smooth and quiet operation. These compressors are ideal for Mid-range heating capacity. (15KW-250KW).

Rotary Compressor
The rotary compressor used in HVAC applications for air conditioning and heating systems offers some of the most efficient systems. These compressors are suitable for lesser heating capacities. (3.5KW-10KW)

Screw Compressor
This compressor has been known for its high specific output. Maintenance is easier due to fewer parts. Generally, this compressor is used for bigger capacities. (Heating Load ≥ 250KW)

Reciprocating Compressor
The reciprocating compressor is easier to maintain and works very well at high pressure. These compressors are suitable where a lower condensing temperature is needed approximately 45-50°C

Condenser

PVC Shell Titanium Condenser
Titanium exhibits outstanding resistance to corrosion supporting its use in swimming pool heat pump and chiller. Rifled titanium tube further provide better heat transfer.

Brazed Plate Heat Exchanger(BPHE)
BPHE offers highest heat exchanging capability taking much lesser space. The plates are made up of SS316 alloy which have higher corrosion resistance.

Tube-in-Shell Condenser
The compact structure is helpful to save space for the heat pump and thus reduce the size of the unit. The compact helix structure of the coil ensures sufficient heat transfer between refrigerant and water.

Co-axial Condenser
This condenser is composed of concentric inner tubes and outer tubes which is evenly separated. The refrigerant and water flow through the inner tube and outer tube transferring heat.

Blue Finned Coil

Blue Fin technology is the practice of coating the evaporator and condenser fins with epoxy, a kind of resin. Epoxy is a hydrophilic compound that does not allow water to settle on it for too long. It has low surface tension, meaning it has low friction which makes water droplets slide off easily.

Expansion Valve

Thermostatic Expansion Valve
Movable valve pin controlled precisely to allow refrigerant flow to evaporator coil. Stable performance and longer service life.

Electronic Expansion Valve
An EEV controls refrigerant flow into evaporator coil more precisely than the traditional TXV, providing more efficiency

Anti Vibration Element

The component is used in larger capacity heat pumps and chillers to avoid crack initiation. The stiffness and mass of the absorber are designed in order to produce “anti-resonance” in the total system response.

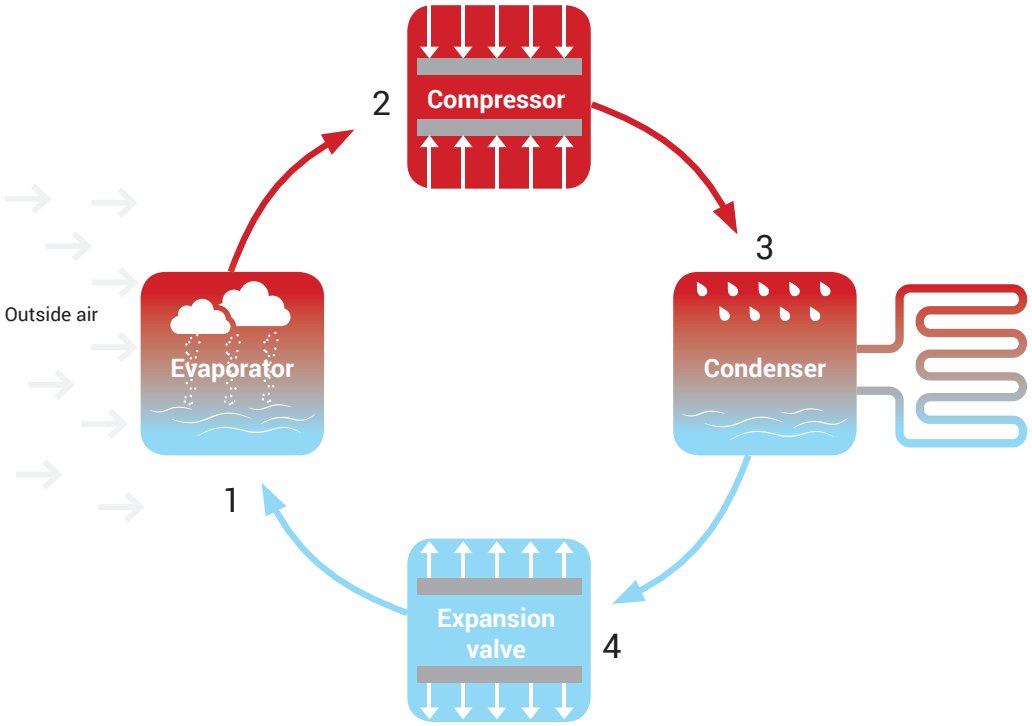
High Pressure/Low Pressure Switch

Ensure safe operation of heat pump or chillers if circulation pump stops working or refrigerant leaks.

EMERSON COPELAND · Panasonic · ALFA LAVAL · Gimleo PROFESSIONAL MANUFACTURER OF HEAT EXCHANGERS SINCE 2005 · Dry All Full Range of HVAC&R Line Products

SWEP A DOVER COMPANY · Danfoss · Schneider Electric · SANHUA · HICOOL Air Moving Products

Heat Pump Working Principle



A compressor pumps the refrigerant between two heat exchanger coils.

1-2 In evaporator coil, the refrigerant is evaporated at low pressure and absorbs heat from its surroundings.

2-3 The refrigerant is then compressed en route to the other coil.

3-4 Here it condenses at high pressure and it releases the heat it absorbed, earlier in the cycle.

4-1 The high pressure low temperature refrigerant will be converted into low pressure low temperature refrigerant when it passes through the expansion valve and the cycle will recommence.

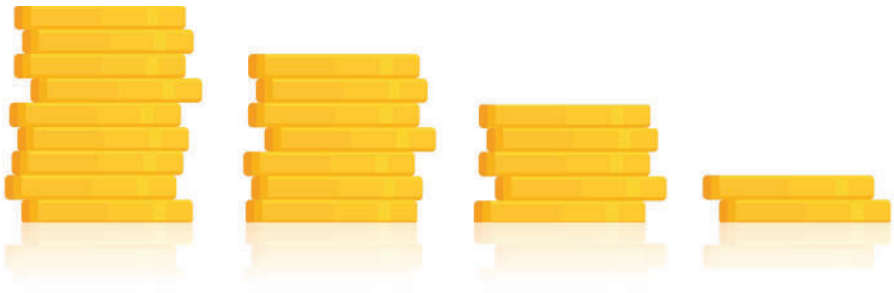
Benefits of Heat Pump

- ✓ Reduced water heating costs upto 75%
- ✓ Reliable hot water round the year
- ✓ Reduced carbon emissions
- ✓ Negligible maintenance costs
- ✓ Quick payback & return on investment
- ✓ Longest product life
- ✓ Silent operation
- ✓ Space saving

Economic Benefits of Heat Pump

Operating cost per 100 liters of hot water

	₹37	₹32	₹23	₹10
	Electric	**LPG**	**PNG**	**Heat Pump**
Efficiency	95%	90%	90%	350%
Heat Required in Kcals	150000	150000	150000	150000
Calorific Value	-	11200	8400	-
Power Required Kilowatt	174.42	-	-	174.42
Power Consumption In KWh	183.60	-	-	49.83
Heat Delivered In per Kg	-	10080	7560	-
Total Fuel Required Kg/Ltrs	-	16.5	22.05	-
Cost/Unit ₹	10	95	51	10
Total Cost/Day ₹	1,836	1,571	1,124	498
Total Cost/Month ₹	55,080	47,123	33,730	14,950
Total Cost/Year ₹	660,955	565,476	404,762	179,402



Above Calculations are based on following Data
Quantity of Hot water Estimated (Liters.) 5000; Cold Water Inlet Temperature (20°C); Hot water Temperature (°50C)

All in One Heat Pumps

Applications

Bungalows
Villas
Farm Houses

		SE-AH-1-80	SE-AH-2-150	SE-AH-2-200
Rated Volume	L	80	150	200
Inner Tank Material		Enameled steel (1.8mm)	Enameled steel (2.5mm)	Enameled steel (2.5mm)
Outer Casing		Painted galvanized steel		
Insulation		Polyurethane foam, 45mm		
Ambient Temperature	°C	5~45	0~45	0~45
Color		White		
COP		3.4	3.85	3.85
Power Supply		~220-240V/50Hz/1Ph		
Heating Capacity (W)	W	750	1600	1600
Rated Hot Water Output	L/H	16	36	36
Max. Water Temp.	°C	55	75	75
Max. Input Power	W	2450	3200	3200
Max. Input Current	A	12	16	16
Rated Input Power	W	220	415	415
Electric Heater Power	W	2000	2500	2500
Water Pressure	MPa	0.8		
Noise	dB(A)	≤40	≤48	≤48
Net Weight	kg	70	102	114
Refrigerant		R134a		
Compressor Brand		Panasonic		
Condenser		Micro-channel heat exchanger		
Control Method		Remote display		
Product Size	mm	Ø470 × 1075	Ø525 × 1735	Ø525 × 1955

Note: Colour Subject to Change.
All-in-one Heat Pump Models Are Available From 80 Litres to 500 Litres.

Description

In an all-in-one heat pump water heater, the heated refrigerant is usually conveyed through a heat exchanger that's wrapped around the outside of the tank, under the insulation. The refrigerant heats the tank by conduction, transferring heat from the condenser coil through the tank shell, to the water inside.

Heat pump is a device in which the refrigerant R134a is continuously changing the shape from gas to liquid. It pumps out the solar energy from the air in the room and together with electrical energy consumed by compressor it gives out the total heating capacity which is accumulated in the water storage tank.

Evaporator is an air-refrigerant heat exchanger. In the evaporator the refrigerant is vaporized at low pressure and relatively low temperature. Because of vaporization the heat transfer from air to refrigerant begins. Vaporized refrigerant comes in the compressor where the pressure increases and so does temperature.

From compressor the vaporized and high temperature steam goes in the condenser (refrigerant-water) where again the heat is transferred from refrigerant to water. The refrigerant is now in liquid shape at a high pressure. After it flows through the expansion valve it reaches the basic shape and the process begins again. The circuit is in process until the water temperature in the water storage tank reaches the set point.

Features

High efficiency micro channel heat exchanger

Glass enamel water tank

High efficiency compressor with defrosting

Silent operation

Intelligent control electronic expansion valve

Suitable for all kinds of water

		SE-AH-3-300	SE-AH-6-350	SE-AH-6-420
Rated Volume	L	300	350	420
Inner Tank Material		Enameled steel (2.5mm)		
Outer Casing		Painted galvanized steel		
Insulation		Polyurethane foam, 50mm		
Ambient Temperature	°C	-5~43		
Color		White	Grey	Grey
COP		4.08		
Power Supply		~220-240V/50Hz/1Ph		
Heating Capacity (W)	W	3300	5300	5300
Rated Hot Water Output	L/H	75	118	118
Max. Water Temp.	°C	75		
Max. Input Power	W	4000	5000	5000
Max. Input Current	A	19	23	23
Rated Input Power	W	827	1300	1300
Electric Heater Power	W	2500		
Water Pressure	MPa	0.8		
Noise	dB(A)	≤45		
Net Weight	kg	129	192	207
Refrigerant		R134a		
Compressor Brand		Panasonic		
Condenser		Micro-channel heat exchanger		
Control Method		Remote display		
Product Size	mm	Ø650 × 1950	Ø675 × 937 × 1720	Ø735 × 1006 × 1720

Note: Colour Subject to Change.
All-in-one Heat Pump Models Are Available From 80 Litres to 500 Litres.

Monoblock Heat Pumps

Applications

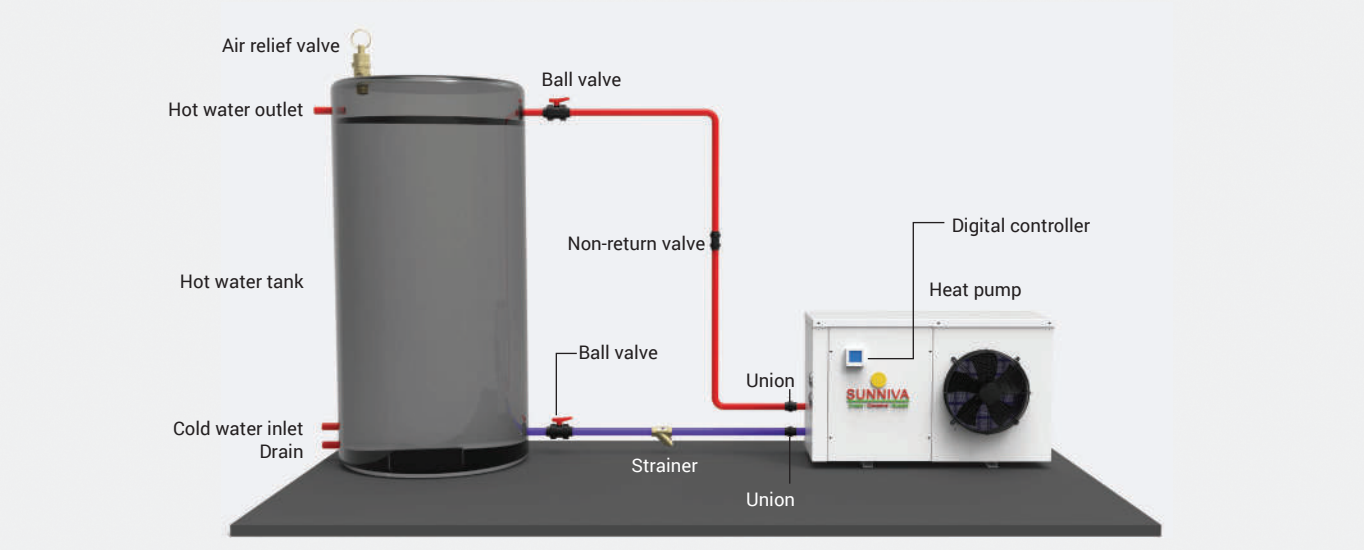
Hotels

Motels

Boarding Houses

Back-up for Solar Water Heaters

Schematic Diagram



Description

Specifically designed for Indian conditions, these heat pumps comes with inbuilt water circulation pump so we only need to connect the pipes and plug the machine. This range of heat pumps comes with Panasonic rotary compressor for high life.

Inbuilt circulation pump

Silent operation

Less maintenance

Features

- Panasonic/equivalent (highly efficient rotary compressor)
- Automatic defrosting
- Low noise & vibration
- Inbuilt circulation pump
- Closed loop system possible
- Long working life
- Safe, reliable and stable running
- Easy to install
- Intelligent control

		SE-AH-4M	SE-AH-7M	SE-AH-10M
Heating Capacity	KW	3.5	7.4	9.3
COP		4.12	4	4
Rated Heated Water Output	L/H	105	215	280
Rated Outlet Water Temp.	℃	55		
Max Outlet Water Temp.	℃	60		
Rated Power Input	KW	0.85	1.85	2.33
Rated Current	A	4.07	8.85	11.20
Power Supply		~220-240V/50Hz/1Ph		
Compressor Type		Rotary		
Throttling Device		Electronic Expansion Valvez		
Fan Quantity	Piece	1		
Fan Input	W	25	40	50
Fan Speed	RPM	830	850	850
Ambient Temperature	℃	-7~43		
Refrigerant		R410A/R417A		
Circulation Pump		Wilo/Equivalent		
Noise At 1m Distance	dB(A)	≤54	≤55	≤57
Water Pipe Size	inch	Rc3/4		
Product Dimension (L×W×H)	mm	930 × 350 × 550	1005 × 350 × 620	1110 × 400 × 750
Net Weight	kg	48	66	85

Testing Condition: Ambient Temp.(DB/WB) = 30℃/25℃, Input/Output Water Temp. = 25℃/55℃

Commercial Heat Pumps

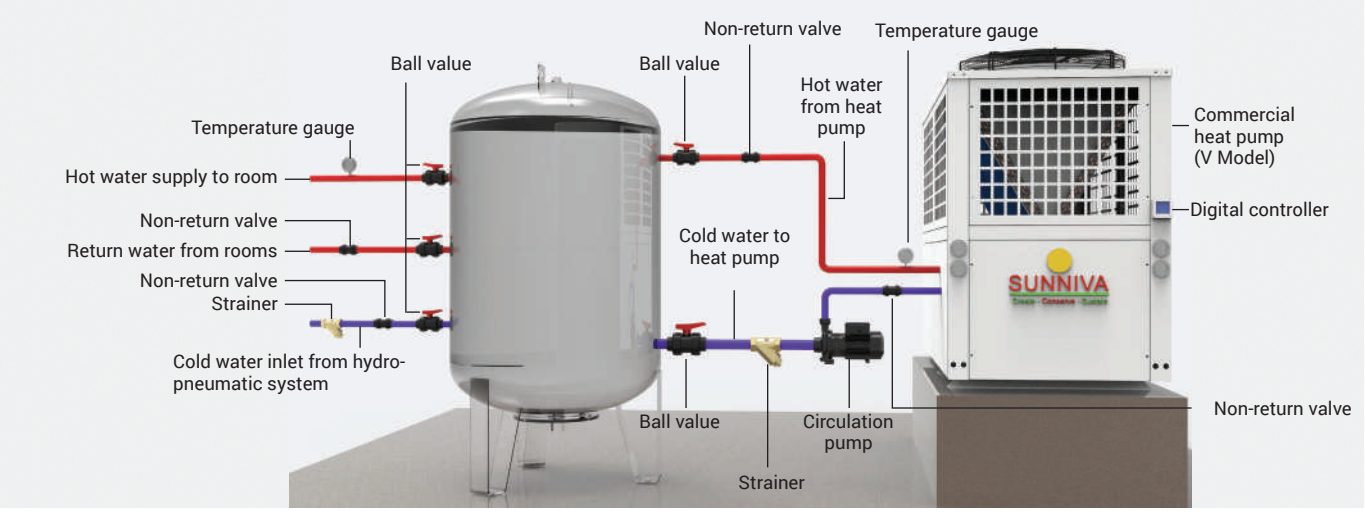
Applications

- Hotels
- Resorts
- Hospitals
- Boarding Schools
- Apartment Complexes

		SE-AH-14U	SE-AH-19U	SE-AH-25U	SE-AH-37U	SE-AH-45U	SE-AH-50U
Heating Capacity	KW	14	19	25	37	45	50
COP		4.2	4.2	4.15	4.2	4.16	4.2
Rated Hot Water Output	L/H	400	540	710	1070	1270	1480
Rated Water Temp.	°C	55					
Max Water Temp.	°C	60					
Input Power	KW	3.8	4.4	6	8.8	11.1	12.1
Current	A	6.4	8.4	11.4	16.7	20.1	23.1
Power Supply		380~415V/50Hz/3Ph					
Compressor		Scroll (Copeland/Panasonic)					
Number of Compressor		1	1	1	2	1	2
Heat Exchanger (Condenser)		Tube-in-Shell Heat Exchanger / Brazed Plate Heat Exchanger					
Evaporator		Blue Finned Evaporator Coil					
Throttling Device		Thermostatic Expansion Valve/Electronic Expansion Valve					
Water Flow	m^3/hr	2.5	3.2	4.3	6.5	7.5	8.7
Fan Quantity	Piece	1	1	1	2	1	2
Refrigerant		R410A/R407C					
Noise at 1 Meter	dB(A)	≤65	≤65	≤65	≤65	≤66	≤67
Pipe Size	inch	R1	R1	R1	R1-1/2	R1-1/2	R1-1/2
Dimension (L X W X H)	mm	800 × 800 × 1110	800 × 800 × 1110	800 × 800 × 1025	1450 × 890 × 1110	975 × 975 × 1300	1600 × 990 × 1150
Weight	kg	140	180	200	310	325	365

Testing Condition: Ambient Temp.(DB/WB) = 30°C/25°C, Inlet Water Temp.= 25°C, Outlet Water Temp. = 55°C (E.T. = 10°C / C.T. = 60°C)

Schematic Diagram



Description

This series is splendid for centralized hot water system and is capable of generating hot water upto 55°C It is the ideal hot-water solution for Hotels, Hospitals, Resorts, Boarding Schools and Apartment Complexes.

Silent operation

Less maintenance

60°c

Temperature

Features

- American Copeland/Panasonic scroll compressor
- Automatic defrosting (optional)
- Super intelligence
- Low noise and vibration
- Stable running, safe and reliable
- Smart-touch control
- Anti-corrosive coating
- HP/LP safety feature

		SE-AH-70V	SE-AH-90V	SE-AH-100V	SE-AH-140V	SE-AH-180V
Heating Capacity	KW	70	90	100	140	180
COP		4.1	4.15	4.2	4.1	4.15
Rated Hot Water Output	L/H	2030	2600	2970	4060	5220
Rated Water Temp.	°C	55				
Max Water Temp.	°C	60				
Input Power	KW	17.1	21.7	23.8	34.1	43.4
Current	A	32.4	41.2	45.6	64.9	82.4
Power Supply		380~415V/50Hz/3Ph				
Compressor		Scroll (Copeland/Panasonic)				
Number of Compressor		2	2	2	4	4
Heat Exchanger (Condenser)		Tube-in-Shell Heat Exchanger / Brazed Plate Heat Exchanger				
Evaporator		Blue Finned Evaporator Coil				
Throttling Device		Thermostatic Expansion Valve/Electronic Expansion Valve				
Water Flow	m^3/hr	12	15.5	17.3	24	30.9
Fan Quantity	Piece	2	2	2	4	4
Refrigerant		R410A/R407C				
Noise at 1 Meter	dB(A)	≤70	≤72	≤72	≤75	≤78
Pipe Size	inch	R1-1/2	R2	R2	R2-1/2	R2-1/2
Dimension (L X W X H)	mm	1850 × 950 × 1635	2250 × 1090 × 1785	2250 × 1090 × 1785	2200 × 2100 × 1800	2200 × 2100 × 1800
Weight	kg	610	740	820	1150	1300

Testing Condition: Ambient Temp.(DB/WB) = 30°C/25°C, Inlet Water Temp.= 25°C, Outlet Water Temp. = 55°C (E.T. = 10°C / C.T. = 60°C)

Swimming Pool Heat Pumps

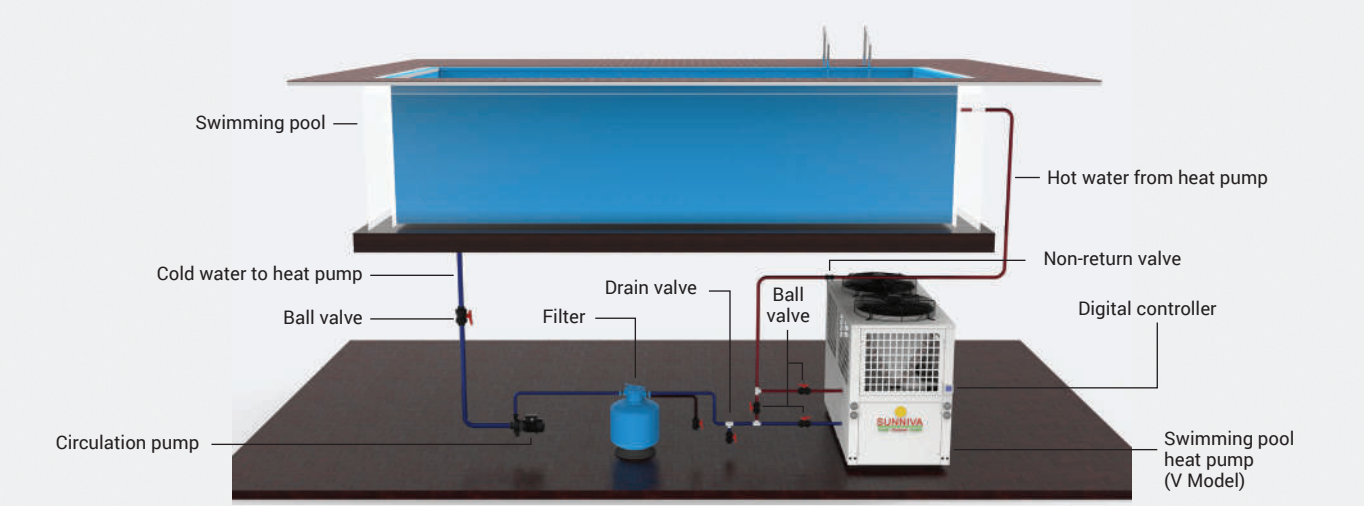
Applications

- Swimming Pools
- Spas
- Jacuzzis
- Physiotherapy Clinics

		SE-SP-11U	SE-SP-17U	SE-SP-25U	SE-SP-35U	SE-SP-50U
Heating Capacity	KW	11	17	25	35	50
COP		6.7	6.7	6.7	6.8	6.7
Max Output Water Temp.	°C	45				
Power Supply		380~415V/50Hz/3Ph				
Input Power	KW	1.8	2.5	3.7	5.1	7.4
Current	A	3.7	5.3	8	10.6	16
Max Input Power	KW	2.9	4.1	5	8.6	11
Max Current	A	5.2	7.2	9.5	15.2	23
Evaporator Coil		Blue Finned Evaporator Coil				
Throttling Valve		Thermostatic Expansion Valve / Electronic Expansion Valve				
Heat Exchanger (Condenser)		PVC Shell Titanium Condenser				
Refrigerant		R410A/R407C				
Compressor		Reciprocating (Copeland)		Scroll (Copeland/Panasonic)		
Number of Compressor		1	1	1	1	2
Fan Quantity	Piece	1	1	1	1	2
Fan Discharging		Horizontal	Horizontal	Vertical	Vertical	Vertical
Water Flow	m^3/hr	5	7.6	11.2	15	23
Pipe Size	inch	Rc1-1/2	Rc1-1/2	Rc1-1/2	Rc2	Rc2
Noise	db(A)	≤53	≤55	≤56	≤61	≤66
Dimension	mm	1250 x 660 x 725	1250 x 660 x 725	800 × 800 × 1110	975 × 975 × 1300	1450 × 890 × 1110
Weight	kg	120	145	170	240	320

Testing Condition: Ambient Temp. (DB/WB)=24°C./19°C, Inlet Water Temp. = 26°C, Outlet Water Temp. = 28°C (E.T. 10°C./ C.T. 40°C)

Schematic Diagram



Description

This series applies titanium heat exchanger and heat pump technology which can move heat from surroundings to the pool water. It is especially suitable for commercial swimming pools.

Energy saving

WiFi Control

MODBUS communication

Features

- American Copeland/Panasonic scroll compressor
- Titanium tube in PVC shell heat exchanger
- Intelligent defrosting (Optional)
- Easy installation and operation
- Stable running, economic and durable
- Heating in winter & optional cooling in summer
- Available in EVI category
- Smart touch
- WiFi Controlling (Optional)

		SE-SP-65U	SE-SP-80V	SE-SP-90V	SE-SP-110V	SE-SP-140V	SE-SP-220V
Heating Capacity	KW	65	80	90	110	140	220
COP		6.7	6.9	6.9	6.9	6.6	6.9
Max Output Water Temp.	°C	45					
Power Supply		380~415V/50Hz/3Ph					
Input Power	KW	9.7	11.8	13	16.8	20.2	33.6
Current	A	21	24	25.8	33.1	44.8	66.2
Max Input Power	KW	15.8	17.2	20.5	26	31	52
Max Current	A	29	30.4	35.5	45.2	57.6	90.4
Evaporator Coil		Blue Finned Evaporator Coil					
Throttling Valve		Thermostatic Expansion Valve / Electronic Expansion Valve					
Heat Exchanger (Condenser)		PVC Shell Titanium Condenser					
Refrigerant		R410a/R407C					
Compressor		Scroll (Copeland/Panasonic)					
Number of Compressor		2	2	2	2	2	4
Fan Quantity	Piece	2	2	2	2	2	4
Fan Discharging		Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Water Flow	m^3/hr	30	35	40	47	60	95
Pipe Size	inch	Rc2	Rc2-1/2	Rc2-1/2	Rc3	Rc3	Rc4
Noise	db(A)	≤66	≤66	≤66	≤68	≤70	≤76
Dimension	mm	1600 × 990 × 1150	1850 × 950 × 1635	1850 × 950 × 1635	2250 × 1090 × 1785	2250 × 1090 × 1785	2200 × 2100 × 1800
Weight	kg	410	540	570	750	820	1180

Testing Condition: Ambient Temp. (DB/WB)=24°C./19°C, Inlet Water Temp. = 26°C, Outlet Water Temp. = 28°C (E.T. 10°C./ C.T. 40°C)

High Temperature Heat Pumps

Applications

Laundries

Commercial Kitchens

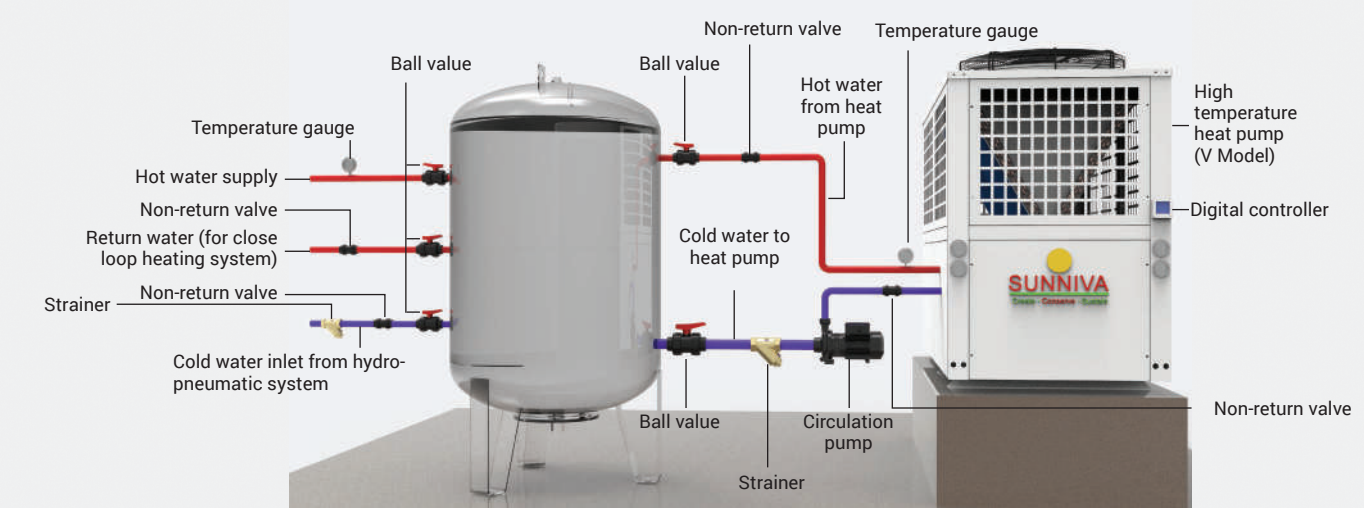
Pharma Industry

Industrial Processes

		SE-HT-15U	SE-HT-19U	SE-HT-29U	SE-HT-35U
Heating Capacity	KW	14.5	18.4	28.6	34.9
COP		4.2	4	4.2	4.1
Power Supply		380~415V/50Hz/3Ph			
Input Power	KW	3.5	4.6	6.8	8.5
Rated Current	A	7.6	11.8	17.4	21.2
Rated Water Temperature	°C	75			
Max Water Temperature	°C	80			
Heat Exchanger (Condenser)		Brazed Plate Heat Exchanger / Tube in Shell			
Evaporator		Blue Finned Evaporator Coil			
Throttling Valve		Electronic Expansion Valve			
Refrigerant		R134a			
Compressor		Scroll (Copeland/Panasonic/Sunniva)			
Number of Compressor		1	1	2	1
Fan Quantity	Piece	1	1	2	1
Rated Hot Water Output @ 60°C	LPH	360	530	820	1000
Rated Hot Water Output @ 70°C	LPH	280	370	580	700
Rated Hot Water Output @ 80°C	LPH	215	280	435	530
Water Flow	m^3/hr	2.5	3.3	5.5	6.1
Water Pressure Drop	KPa	≤45	≤50	≤55	≤56
Weight	kg	174	205	320	350
Noise at 1 Meter	dB(A)	≤58	≤62	≤65	≤69
Pipe Size	inch	R1	R1	R1-1/4	R1-1/2
Dimension	mm	800 × 800 × 1110	800 × 800 × 1025	1450 × 890 × 1110	975 × 975 × 1300

Testing Condition: Ambient Temp. (DB/WB)=20°C/15°C, Inlet Water Temp. = 55°C, Outlet Water Temp. = 60°C (E.T. 10°C./ C.T. 65°C)

Schematic Diagram



Description

This series of heatpumps can generate hot water at 80°C at high COP. These heatpumps are ideal for industrial applications and processes requiring water at high temperature.

MODBUS communication

Environment friendly refrigerant

80°C

High Temperature

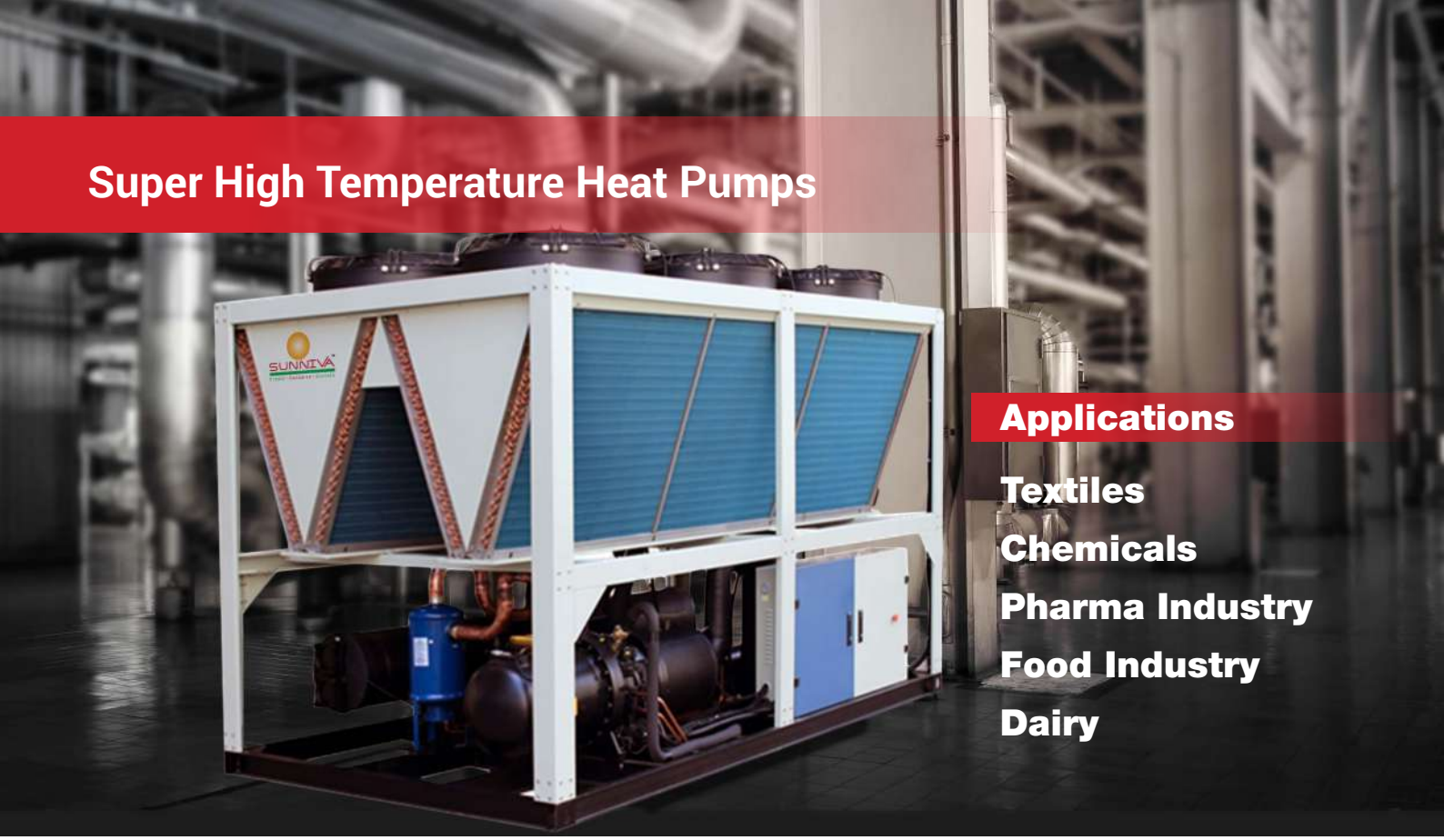
Features

- Water outlet temperature up to 75/80°C
- Capacity available up to 200 KW
- Wide ambient range 7-43°C
- Environment friendly green refrigerant
- Protective system with thermostat and pressure switch
- Overload protection
- Smart touch

		SE-HT-38U	SE-HT-58V	SE-HT-70V	SE-HT-115V
Heating Capacity	KW	36.8	57.2	69.8	114.4
COP		4.0	4.2	4.1	4.2
Power Supply		380~415V/50Hz/3Ph			
Input Power	KW	9.2	13.6	17	27.2
Rated Current	A	23.6	34.8	42.4	69.6
Rated Water Temperature	°C	75			
Max Water Temperature	°C	80			
Heat Exchanger (Condenser)		Brazed Plate Heat Exchanger / Tube in Shell			
Evaporator		Blue Finned Evaporator Coil			
Throttling Valve		Electronic Expansion Valve			
Refrigerant		R134a			
Compressor		Scroll (Copeland/Panasonic/Sunniva)			
Number of Compressor		2	2	2	4
Fan Quantity	Piece	2	2	2	4
Rated Hot Water Output @ 60°C	LPH	1060	1640	2000	3280
Rated Hot Water Output @ 70°C	LPH	750	1160	1400	2310
Rated Hot Water Output @ 80°C	LPH	560	870	1060	1740
Water Flow	m^3/hr	6.6	10	12.2	20
Water Pressure Drop	KPa	≤58	≤65	≤70	≤75
Weight	kg	375	510	610	1040
Noise at 1 Meter	dB(A)	≤74	≤76	≤78	≤81
Pipe Size	inch	R1-1/2	R1-1/2	R2	R2-1/2
Dimension	mm	1600 × 990 × 1150	1850 × 950 × 1635	1850 × 950 × 1635	2200 × 2100 × 1800

Testing Condition: Ambient Temp. (DB/WB)=20°C/15°C, Inlet Water Temp. = 55°C, Outlet Water Temp. = 60°C (E.T. 10°C./ C.T. 65°C)

Super High Temperature Heat Pumps



Applications

- Textiles
- Chemicals
- Pharma Industry
- Food Industry
- Dairy

Description

This series of heat pumps can generate hot water up to 90°C using a refrigerant R1234ze. The heat pumps are ideal to be used in industrial applications because of ultra low GWP and heating capacity up to 1000 KW.

MODBUS communication

Environment friendly refrigerant

90°C

Super high temperature

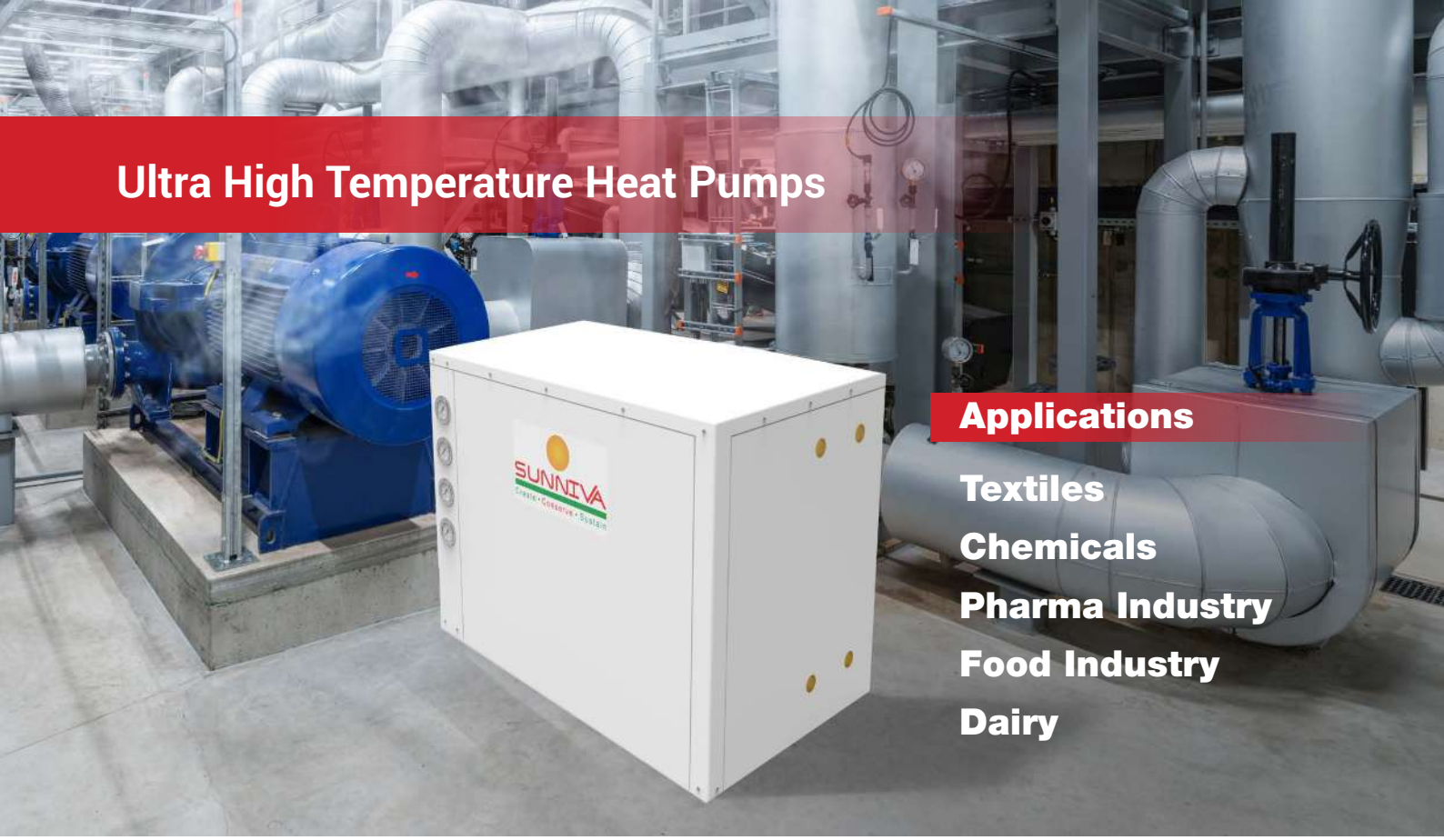
Features

- Water outlet temperature up to 90°C
- Capacity ranging from 280 to 1000 KW
- Smart display controller
- Ultra low GWP
- Hanbell screw compressor
- Water flow rate and high pressure protection system

		SE-SHT-280V	SE-SHT-320V	SE-SHT-420V	SE-SHT-500V
Heating Capacity	KW	280	320	420	504
COP		2.1	2.0	2.2	2.2
Rated Hot Water Output	LPH	4000	4600	6000	7200
Rated Water Temp.	°C	85			
Max Water Temp.	°C	90			
Input Power	KW	136	157	194	233
Current	A	278	323	402	484
Power Supply		380~415V/50Hz/3Ph			
Compressor		Screw (Hanbell)			
Number of Compressor		1			
Heat Exchanger (Evaporator)		Blue Finned Evaporator Coil			
Condenser		Shell and Tube Condenser			
Fan Quantity	Piece	6	6	8	8
Water Flow	m3/hr	48	55	72	87
Ambient Temperature	°C	20-43			
Refrigerant		R1234ze			
Noise at 1 Meter	dB(A)	≤75	≤76	≤77	≤78
Pipe Size	inch	R3	R3	R4	R5
Dimension (L X W X H)	mm	3400 × 2100 × 2400	3400 × 2100 × 2400	4500 × 2100 × 2400	4500 × 2100 × 2400
Weight	kg	2900	3050	3200	3250

Testing Condition: Inlet/Outlet Water Temp.(Condenser Side)= 30°C/90°C

Ultra High Temperature Heat Pumps



Applications

- Textiles
- Chemicals
- Pharma Industry
- Food Industry
- Dairy

Description

Ultra high temperature heat pumps are capable of generating steam upto 120°C using R245fa refrigerant. This makes it an ideal choice for industrial applications that require steam for their processes.

MODBUS communication

Environment friendly refrigerant

120°C

Ultra high temperature

Features

- Water outlet temperature up to 120°C
- Reliable scroll compressor technology
- Smart display controller
- Independent of ambient temperature
- Heating capacity starts at as low as 35 KW
- High efficiency brazed plate heat exchanger

		SE-UHT-35	SE-UHT-70	SE-UHT-140
Heating Capacity	KW	35	70	140
COP		3.1	3.1	3.1
Rated Hot Water Output	LPH	350	680	1350
Rated Water Temp.	°C	100		
Max Water Temp.	°C	120		
Input Power	KW	12	22.5	45
Current	A	20	39	76
Power Supply		380~415V/50Hz/3Ph		
Compressor		Scroll (Sunniva)		
Number of Compressor		1	2	4
Heat Exchanger (Evaporator)		Brazed Plate Heat Exchanger / Tube in Shell		
Condenser		Brazed Plate Heat Exchanger		
Throttling Device		Electronic Expansion Valve		
Water Flow	m3/hr	6.5	13	26
Refrigerant		R245fa		
Noise at 1 Meter	dB(A)	≤60	≤65	≤68
Pipe Size	inch	R1-1/2	R2	R2-1/2
Dimension (L X W X H)	mm	1950 × 950 × 1290	2200 × 1100 × 1535	2200 × 2200 × 1535
Weight	kg	450	780	1550

Testing Condition: Cold Water Temperature = 30°C, Inlet/Outlet Water Temp.(Evaporator Side)= 55°C/50°C
Inlet/Outlet Water Temp.(Condenser Side)= 95°C/100°C(E.T. = 50°C / C.T. = 120°C)

EVI Heat Pumps

Applications

Hotels

Resorts

Hospitals

Boarding Schools

Apartment Complexes

Description

EVI Air Source heat pumps transfer heat from the ambient air to water, providing hot water up to 60°C. The unique Low ambient-temperature heat pump is widely used for house warming. With innovative & advanced technology, the direct-heating heat pump can operate very well at -25°C ambient temperature with high output temperatures up to 60°C, which ensures the compatibility with normal sized radiator based systems without supplementation.

Sub-zero temperature

Less CO^2 emissions

Low noise operation

Features

- Low running costs and high efficiency (COP up to 5)
- Reduced Capital Costs as it is Compatible with traditional radiator systems
- Long-life and corrosion resistant composite cabinet stands severe climates.
- American Copeland/ Panasonic scroll compressor ensures outstanding performance, ultra energy efficiency, durability and quiet operation.
- Self-diagnostic digital control panel monitors and troubleshoots heat pump operations to ensure safe and reliable operation.

		SE-EVI-10U	SE-EVI-19U	SE-EVI-37U	SE-EVI-43U	SE-EVI-70U
Heating Capacity	KW	10.3	18.7	37.4	43.4	69.8
COP		4.42	4.45	4.41	4.51	4.58
Rated Heated Water Output	L/H	220	400	800	930	1500
Rated Outlet Water Temp.	°C	55				
Max Outlet Water Temp	°C	60				
Rated Power Input	KW	2.32	4.2	8.48	9.63	15.23
Rated Current	A	11.10	7.85	16.11	18.29	28.93
Power Supply		220-240V/ 50Hz/1Ph	380-415V/50hz/3Ph			
Compressor Type		Scroll (Emerson/Panasonic)				
Number of Compressors		1	1	2	2	2
Throttling Device		Electronic Expansion Valve				
Fan Discharging		Vertical				
Fan Quantity	Piece	1	1	2	2	2
Fan Input	W	70	250	250	250	750
Ambient Temperature	°C	-25-43				
Refrigerant		R407C / R410A				
Circulation Flow	m^3/h	1.76	3.2	6.44	7.47	12
Circulation Pressure Drop	kPa	≤30	≤60	≤65	≤65	≤65
Noise At 1 Meter Distance	dB(A)	≤59	≤62	≤63	≤63	≤68
Water Pipe Size	inch	R1	R1	R1-1/2	R1-1/2	Rc2-1/2
Cabinet		Stainless Steel/Steel with Powder Coating				
Dimension (L × W × H)	mm	710 × 710 × 795	800 × 800 × 1110	1450 × 890 × 1110	1450 × 890 × 1110	1990 × 980 × 2045
Net Weight	kg	107	129	268	305	552

Testing Condition: Ambient Temp.(DB/WS)= 20°C/15°C, Input/Output Water Temp. = 15°C/55°C

Water Source Heat Pumps

Applications

- Hotels
- Resorts
- Hospitals
- Boarding Schools
- Villas

Description

Water-source heat pumps require a suitable local water source, such as a lake, river, well etc contrary to the air source heatpumps that use air as the heat source.This series of heatpump generates hot and chilled water simultaneously and is one of the most efficient and environment friendly systems available for heating and cooling. These units are highly efficient and available in various sizes and configurations

Operates regardless of ambient temperature

Hot and cold water simultaneously

Compact in size

Benefits

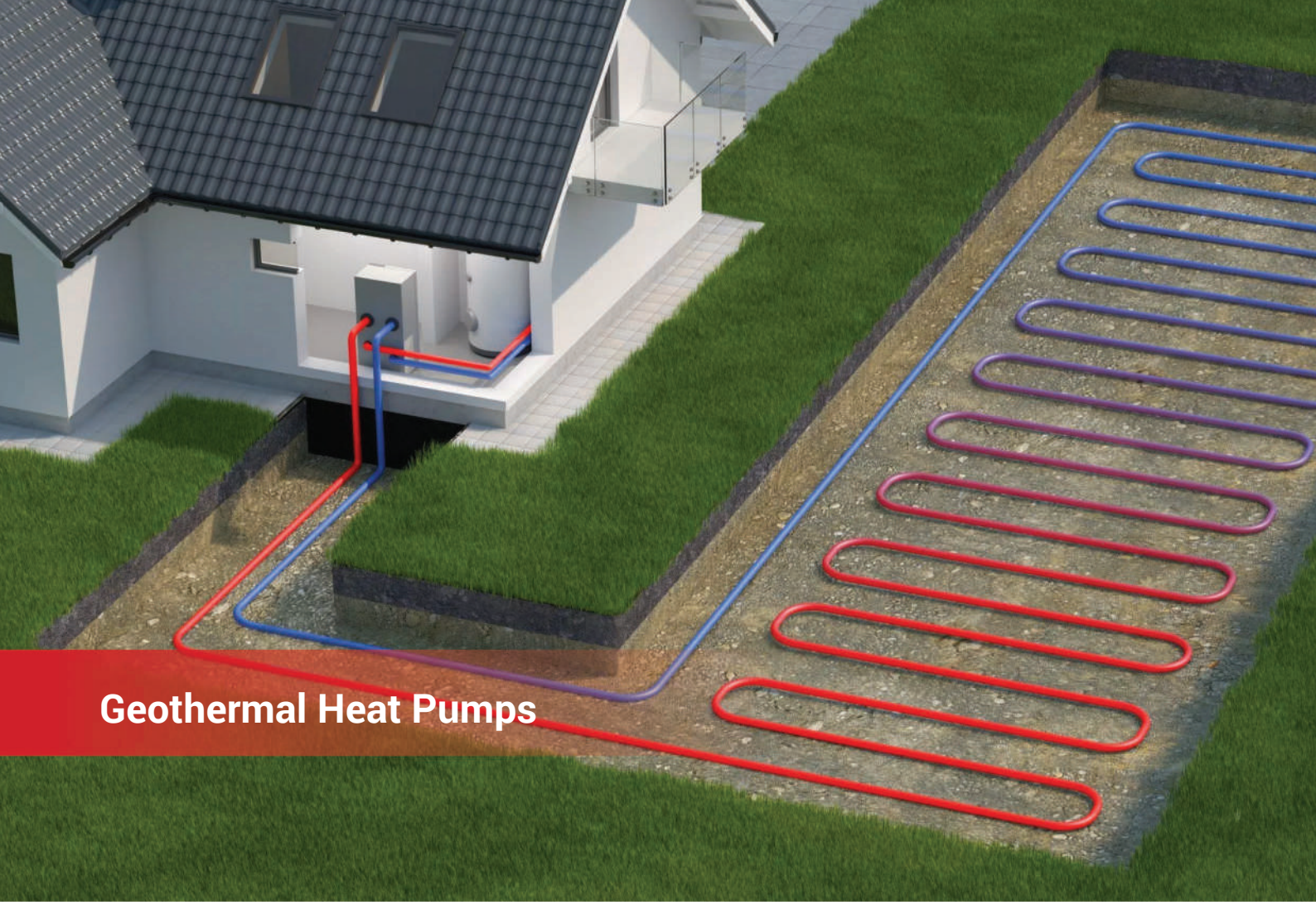
- Reduced water heating costs upto 75%
- Quick payback and return on investment
- Reliable hot water round the year
- Longest product life
- Reduced carbon emissions
- Silent operations
- Negligible maintenance costs

Features

- Hot water temperature up to 80°C (optional)
- Chilled water temperature 7°C for cooling
- Environment friendly refrigerant
- Compact size as no air fans
- Automatic controls
- Touch screen multi-functional controller
- Efficient scroll compressor
- Highly efficient shell and tube heat exchanger

		SE-WW-55V	SE-WW-80V	SE-WW-95V	SE-WW-120V	SE-WW-190V
Power Supply		380-415V/50hz/3Ph				
Rated Heating Output	KW	55	80	95	120	190
Rated Hot Water Output	L/H	1182	1720	2043	2580	4085
Input Power	KW	11.6	16.0	19.4	24.9	38.8
Rated Water Outlet Temperature	°C	55				
COP		4.75	5	4.9	4.8	4.9
Refrigerant		R410A/R134a				
Max. Water Outlet Temperature	°C	60				
Min. Water Outlet Temperature	°C	7				
Compressor		Scroll (Copeland)				
Heat Exhange (Use Side)		Shell and Tube				
Rated Water Flow Rate	m^3/h	9.4	13.8	16.3	20.6	32.7
Heat Exchanger (Source Side)		Shell and tube				
Rated Water Flow Rate	m^3/h	7.3	10.7	12.7	16.1	25.5
Noise At 1 Meter Distance	dB(A)	<62	<64	>65	>68	>72
Dimension (L × W × H)	mm	1100 × 800 × 800	1800 × 1150 × 1050			2000 × 1200 × 1000
Net Weight	kg	320	700	730	780	880

Testing Conditions: Source Side Inlet Water 15°C, Use Side Inlet Water 15°C/Outlet Water 55°C

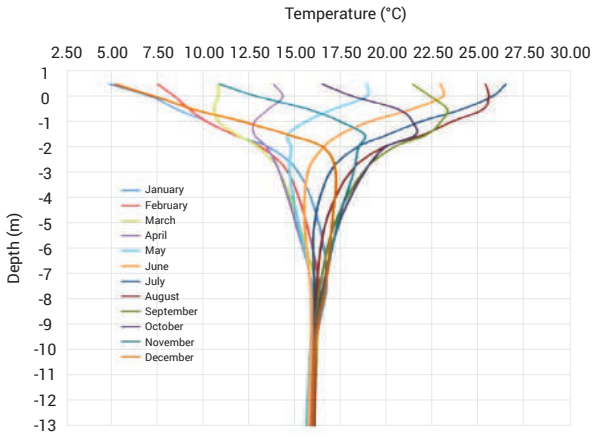


Geothermal Heat Pumps

Description

Geothermal HVAC and power systems use earth's temperature for heat exchange. While temperature variation occurs in atmosphere, temperatures underground remain constant.

In a geothermal HVAC system, an electrically powered heat pump cycles fluid, usually water or refrigerant, through long loops of underground pipes. It is through this process that heat is transferred from ambient air in the building to the ground and vice versa.



Applications of Geothermal Heatpumps

- Space heating and cooling
- Water heating and cooling
- Industrial processes

Air Source Dryers

Description

The dryer operates using a heat pump where both sensible and latent heats are recovered from the exhaust air. The heat is then recycled back through the dryer by heating the air entering the dryer, thus increasing the efficiency of the system. The heat pump drying system is a combination of two sub-systems: a heat pump and a dryer.

		SE-DR-11	SE-DR-11	SE-DR-21	SE-DR-42	SE-DR-50	SE-DR-84	SE-DR-100
Heating Capacity	KW	10.5	10.5	21	42	50	84	100
Cooling Capacity	KW	7.8	7.8	18	32	40	64	80
Dehumidifying Capacity	LPH	12	12	25	50	60	100	120
Input Power	KW	5.5	5.5	9.5	19.4	21.8	40	43.6
Current	A	25	11	19	39	44	80	88
Power Supply		220~240/ 50Hz/1Ph	380~415V/50Hz/3Ph					
Rated Temperature	°C	70						
Max Temperature	°C	75						
Refrigerant		R134a						
Working Ambient Temperature	°C	-5 to 43						
Dimension (L X W X H)	mm	1650 × 856 × 1280	1650 × 856 × 1280	1806 × 1178 × 1662	2142 × 1598 × 1773	2142 × 1598 × 1773	2142 × 1598 × 1773	2142 × 1598 × 1773

Air Cooled Chillers

Applications

- Hotels
- Shopping Malls
- Office Buildings
- Cold Storage Units
- Data Centers
- Dairy

Description

Experience the ultimate cooling solution with our high-performance chiller. Designed for efficiency & durability, this chiller ensures optimal temperature control for a variety of applications.

Our chiller delivers sub-zero temperatures with remarkable consistency. It's robust construction ensures longevity, while its energy efficient design reduces operational costs.

MODBUS communication

-35°C

Ultra low temperature

Environment friendly refrigerant

Features

- Water/glycol temperature upto -35°C
- Capactiy available up to 1000 KW
- Heat recovery system (optional)
- Chilled water temp. range 5-20°C
- Water cooled chiller capacity available up to 5000 KW
- Specialized air cooled compressor

Commercial Chiller (up to 5°C)

		SE-CH-12U	SE-CH-24U	SE-CH-29V	SE-CH-47V
HP	HP	5	10	12	20
Cooling Capacity	KW	11.8	23.5	29	47
COP		2.5	2.58	2.5	2.6
Rated Cold Water Output	LPH	410	820	1000	1620
Rated Water Temp.	°C	7			
Min Water Temp.	°C	5			
Input Power	KW	4.6	9	12	18
Current	A	7.6	16.2	22	32.4
Power Supply		380~415V/50Hz/3Ph			
Compressor		Scroll (Copeland/Panasonic)			
Number of Compressor	Nos	1	1	2	2
Heat Exchanger (Evaporator)		Tube-in-Shell Heat Exchanger / Brazed Plate Heat Exchanger			
Condenser		Blue Finned Condenser Coil			
Throttling Device		Electronic Expansion Valve			
Water Flow	m3/hr	2.2	4.1	5	8
Fan Quantity	Nos	1	1	2	2
Refrigerant		R407C/R404A			
Noise At 1 Meter	dB(A)	≤60	≤65	≤67	≤70
Pipe Size	inch	R1	R1	R1-1/4	R1-1/2
Dimension (L X W X H)	mm	800 X 800 X 1110	975 X 975 X 1300	1650 X 950 X 1625	1850 X 950 X 1635
Weight	Kg	160	320	415	550

Testing condition: Ambient Temp.(DB/WB) = 35°C/30°C, Inlet/Outlet Water Temp.= 12°C/7°C
(E.T. = 2°C / C.T. = 55°C)

Low Temperature Chiller (up to -5°C)

		SE-LT-10U	SE-LT-20U	SE-LT-29V	SE-LT-40V
HP	HP	5	10	16	20
Cooling Capacity	KW	9.4	19.5	29.2	39
COP		2	2.1	2.1	2.1
Rated Cold Water Output	LPH	270	560	840	1120
Rated Water Temp.	°C	0			
Min Water Temp.	°C	-5			
Input Power	KW	4.7	9.2	14.2	18.4
Current	A	10	20	16.4	40
Power Supply		380~415V/50Hz/3Ph			
Compressor		Scroll (Copeland/Panasonic)			
Number of Compressor	Nos	1	1	2	2
Heat Exchanger (Evaporator)		Tube-in-Shell Heat Exchanger / Brazed Plate Heat Exchanger			
Condenser		Blue Finned Condenser Coil			
Throttling Device		Electronic Expansion Valve			
Liquid Flow	m3/hr	1.8	3.5	5	6.8
Fan Quantity	Nos	1	1	2	2
Refrigerant		R404A/R134a			
Noise at 1 Meter	dB(A)	≤60	≤65	≤67	≤70
Pipe Size	inch	R1	R1	R1-1/4	R1-1/2
Dimension (L X W X H)	mm	800 X 800 X 1110	975 X 975 X 1300	1650 X 950 X 1625	1850 X 950 X 1635
Weight	Kg	180	330	420	570

Testing Condition: Ambient Temp.(DB/WB) = 35°C/30°C, Inlet/Outlet Glycol Temp.= 5°C/0°C
(E.T. = -5°C / C.T. = 50°C)

Screw Type Heat Pumps & Chillers

Applications

Shopping Malls
Cruise Ships
Data Centres
Food Industry
Pharma Industry

Types

- **Screw Type Air Source Heat Pump**
  (Heating Capacity: 80 KW to 1100 KW)
- **Screw Type Water Source Heat Pump**
  (Heating Capacity: 80 KW to 6000 KW)
- **Screw Type Air Cooled Chiller**
  (Cooling Capacity: 75 KW to 1000 KW)
- **Screw Type Water Cooled Chiller**
  (Cooling Capacity: 70 KW to 5000 KW)

Energy Efficient

The screw type compressors produce a large heating or cooling capacity but the energy input becomes very crucial in that case. Using heat recovery as an option can increase the COP up-to 6.

Reliable Operation

The machines are designed with 7 safety protection to ensure smooth operation. Using double compressor configuration gives customer an advantage of using single compressor if another circuit fails.

Intelligent Control

Adopts microcomputer control to highly integrate through a centralized management system. Optional equipped with a remote management program to back the system operation information to achieve remote control service.

Cloud Service

The machine can be controlled or monitored remotely using this feature. The fault warning will be shown in case of system stops running. Diagnosing the problem becomes easier in this case. Historical data can be obtained for analysis.

VFD (Variable Frequency Driver) Technology

VFD is to change the power supply frequency, thus adjusting the load, to reduce power consumption, reduce losses, and extend the life of the equipment. The VFD integrated industrial system with simple compressor structure, adopts the motor speed to control the output load to achieve true stepless control to improve compressor reliability.

Glass Lined Tanks

Description

Water storage tanks are adapted to the advanced technology of vitreous enamel inner tank, which fuses to solid steel at about 900°C . The result is a smooth and tough surface that effectively resists the corrosive attacks of hot water chemicals, thus ensuring a long life span of water tank, especially suitable for the areas of hard water.

Insulation protection

CFC free polyurethane foam insulation is injected and surrounds the inner tank, filling the space between the inner tank and outer tank thus providing an exceptionally good heat retention barrier. This helps to reduce the energy cost by minimizing standby heat loss.

Electric Element

Low density Incoloy 800 immersion type element ensures long lasting performance with choice of various heat input (KW) offering different hot water recovery rates.

Anode Protection

Each tank is provided with a magnesium anode rod to protect it against corrosion, a process well proven in years of application.

Safety Protection

Each tank is provided with a pressure and temperature relief valve (P/T valve). It protects the tank against excessive pressure and temperature by releasing its contents safely to the floor trap via the drain pipe.

Wide Application

Water tank can be working standalone as an electric water heater, and it can also be working with solar collector, heat pump, gas, etc.

		300L	400L	500L
Inner Tank		Enameled Steel		
Thickness	mm	2.5		
Outer Tank		Galvanized Steel		
Color		White/Grey		
Insulation	mm	Polyurethane 50		
Inlet/Outlet Size		3/4'		
Rated Working Pressure		700 kPa		
Electric Heater	KW	3	5	5
Thermostat		Included		
P/T Valve		Included		
Magnesium Anode		Included		

** T&C apply*

Ceramic Lined Tanks

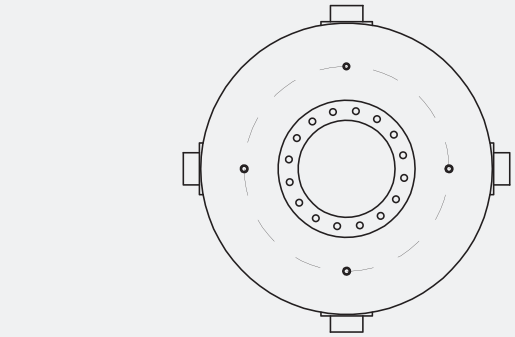
Description

Hot Water Storage Tanks of MS/SS are designed to work for a pressurized/non-pressurized system. The MS tanks have a special ceramic coating which prevents corrosion. For applications with higher TDS water, we manufacture specially designed tanks with SS Calorifiers. These tanks are insulated with 50 mm thick rockwool insulation and aluminum cladding.

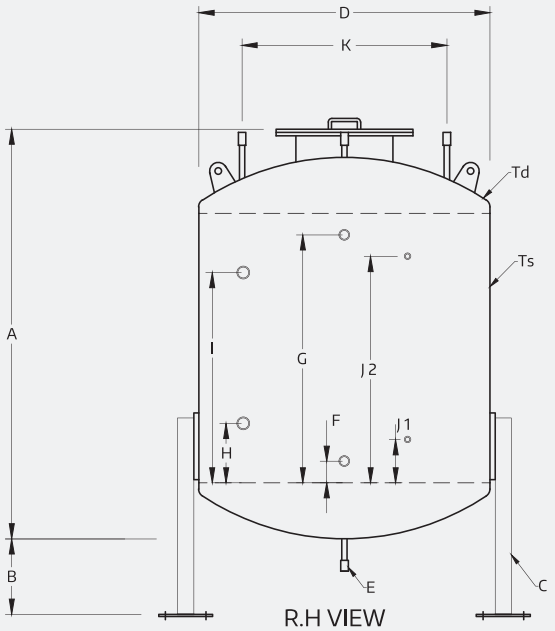
Pressurized Tank

		500P	1000P	1500P	2000P	3000P	4000P	5000P
Total Length (A)	mm	800	1250	1800	2300	2600	3200	3600
Ground Clearance (B)	mm	350						
Diameter Of Tank (D)	mm	800	1000	1140	1350	1500	1600	1600
Shell Thickness (Ts)	mm	5						
Dishend/Flatend Thickness (Td)	mm	6						
Max. Working Pressure	Bar	4						
Weight Of Tank	Kg	300	435	575	660	840	950	1180

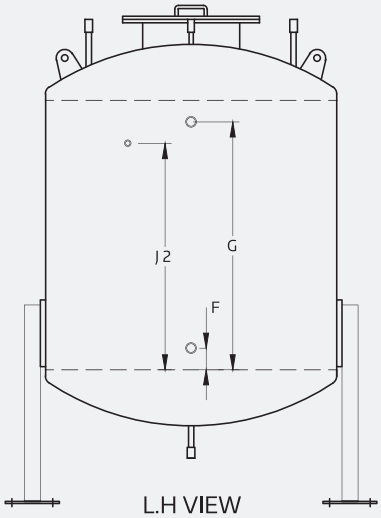
Orthographic Drawing



TOP VIEW



R.H VIEW



L.H VIEW

Non-Pressurized Tank

		500NP	1000NP	1500NP	2000NP	3000NP	4000NP	5000 NP
Total Length (A)	mm	1250	1250	1500	1600	1800	2100	2100
Ground Clearance (B)	mm	200						
Diameter Of Tank (D)	mm	800	1100	1200	1400	1500	1600	1800
Shell Thickness (Ts)	mm	3						
Dishend/Flatend Thickness (Td)	mm	4						
Weight Of Tank	Kg	225	350	500	600	700	820	975

Case Studies

Reckitt Benckiser (India) Limited, Uttarakhand

Pharmaceutical Industry

The company is a well renowned producer of health, hygiene, and nutrition products such as Dettol, Harpic, etc. The heat pump is used for heating De-Mineralized water. To avoid contact of DM water with copper, the water is heated indirectly using PHE.

Requirement: 44 KL/Day water needs to be heated from 20°C to 68°C

Total Heating Capacity Installed: 210 KW (SE-HT-70V X 3 Nos)

System before installing Heat Pumps: Diesel Fired Boiler

Estimated Savings after installing Heat Pumps:

48.5 Lacs per annum

Arnaa Polymer, Thane

Chemical Industry

The company is a manufacturer of Chemicals, rubber, plastics, polymers, etc. Sunniva installed a Water to Water heat pump to address both the requirements. Now the heat pump is delivering more than promised. With mere input of 20 KW the heat pump is delivering heating capacity of 58 KW and cooling capacity of 40 KW. Combining both the capacities the COP is around 5.

Requirement: To heat 10 KL/Day DM water from 25°C to 75°C and cool the jacket water from 32°C to 25°C (Closed Loop) simultaneously.

Total Heating Capacity Installed: 58 KW & 40 KW (SE-WWHT-58 X 1 Nos)

System before installing Heat Pumps: Diesel Fired Boiler (For Heating) / Cooling

Estimated Savings after installing Heat Pumps:

14 Lacs per annum

Anutham, Mumbai

Apartment Complex

Anutham is a residential project by Amardeep constructions. The project consist of 5 wings of 23 storeys each with around 500 flats in total. Having a humongous demand of 60,000 litre per day, Sunniva supplied 20 heat pumps of 25 KW each with separate tanks. Solar PV panels were also installed helping further to reduce carbon emissions.

Requirement: To heat 60 KL/Day water from 20°C to 55°C

Total Heating Capacity Installed: 500 KW (SE-AH-25U X 20 Nos)

System before installing Heat Pumps: Solar Panels with Electric Heaters

Estimated Savings after installing Heat Pumps:

71 Lacs per annum

Chandan Mukhvas, Mumbai

Food Industry

Chandan Mukhvas is a manufacturer of mouth fresheners exporting to 40+ countries worldwide. The chiller was used for cooling the water which will circulate in the cooling coil. The ambient air will be blown over the cooling coil, cooling the air by 7-8°C. After installing the chiller, the production capacity of the company got doubled.

Requirement: To cool the water from 30°C to 7°C for air cooling.

Total Heating Capacity Installed: 45 KW (SE-CH-45U X 1 Nos)

System before installing Heat Pumps: Blower

Estimated Time Savings after installing Heat Pumps:

50% saving in production time

Client List

Hotels

- Ferns Group
- Hyatt Hotels
- Sai Palace Group of Hotel
- GCC Club
- Sea Palace Group of Hotel
- Ramee Group of Hotel
- Orchid Group
- Landmark Group of Hotel
- Taj Falaknuma Palace
- Yogi Group of Hotels
- Anchaviyo Resort
- Hilton Shillim Estate
- Mango Group of Hotels
- Otters Club
- Zuper Hotels
- Summer Plaza
- Bloom Group of Hotels
- Godwin Group of Hotels
- Citizen Hotel
- Bawa Group of Hotels
- Kesar Bagh
- Raajsa Resort
- The Marutinandan Grand
- 7/11 Club

Builders

- Arihant Developers
- Ranjekar Developers
- Suntek Realty
- Avighna Towers
- Priparth Developers
- Lodha Group
- Gundecha Builders
- Priparth Developers
- Airoli Sports Association
- Rosa Group
- Kumkum Building
- Laxmi Devi Developers
- Embassy Group
- Anutham
- Parkland Residence
- Goshar Ventures
- Kotibhaskar

Industry

- Saint Gobain
- Lubrizol Industries
- Chandan Mukhwas
- Adwal Palkar Associates
- Dahanu Rubber
- Reckitt Benckiser Group
- ONGC Oil Rigs
- Majisa Chemical Industries
- Hindustan Chem Tex
- Arnaa Polymers
- Akshay Patra Foundation
- Nisarg Biotech
- Filpak
- Raman & Weil

Hospitals

- Suasth Hospital
- Lifeline Hospital
- AIMS Hospital
- Sadhguru Seva Sangh Trust
- Eye Care Hospital
- Thunga Hospital

Swimming Pools

- Isprava Realty
- Polycab Villa
- Ishwar Exports
- Gravitas India
- Amar Tea (Sanjay Shah)
- Bombay Paints
- Over 500 Individual Swimming Pools

Physiotherapy Clinics

- Dr. Prachi Shah Arora
- Children's Hospital
- Dr. Tejas Patel
- Rotary Sewa Kendra

Ashrams/Boarding Houses

- Aagam Mandir
- Bangalore Bhavan
- Manas Mandir
- Bhanbai Nenshi Hostel
- Chitrakoot Mandir

Gallery













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