

SE-SHT SERIES

SE-SHT-50V

Air source super high-temperature heat pump for process and sanitary water, rated at 95 °C. R515B scroll circuit, three-phase.

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HEATING CAPACITY

51.2 kW

At T1 · A30 °C / W90 °C

PEAK COP

2.3

At T1 · A30 °C / W90 °C

MAX WATER TEMP

95 °C

Rated outlet 90 °C

HOT WATER OUTPUT

750 LPH

At T1 · A30 °C / W90 °C

Performance

Rated output at each test condition

T1 A30 °C / W90 °C

Heating capacity	51.2 kW
Power input	22.3 kW
COP	2.3
Hot water output	750 LPH

T2 A25 °C / W90 °C

Heating capacity	45.7 kW
Power input	21.3 kW
COP	2.1
Hot water output	605 LPH

T3 A20 °C / W90 °C

Heating capacity	39.9 kW
Power input	20.2 kW
COP	2.0
Hot water output	490 LPH

Technical specifications

SE-SHT-50V

ELECTRICAL SUPPLY

Power supply	—	380~415 V / 50 Hz / 3 Ph
Rated current	A	36.8

REFRIGERATION CIRCUIT

Compressor	—	Scroll
Number of compressors	Nos	1
Refrigerant	—	R515B
Heat exchanger (condenser)	—	Tube in shell heat exchanger
Evaporator	—	Blue finned evaporator coil
Throttling device	—	Electronic expansion valve
Fan quantity	Nos	1

WATER CIRCUIT

Rated water temperature	°C	90
Maximum water temperature	°C	95
Water flow	m ³ /hr	9
Water pipe size	inch	R1-1/2

UNIT & ACOUSTICS

Dimensions (L × W × H)	mm	1580 × 780 × 1780
Net weight	kg	410
Noise at 1 metre	dB(A)	≤ 60

TEST CONDITIONS

T1 — Ambient 30/25 °C (DB/WB), E.T. 20 °C, C.T. 95 °C
T2 — Ambient 25/20 °C (DB/WB), E.T. 15 °C, C.T. 95 °C
T3 — Ambient 20/15 °C (DB/WB), E.T. 10 °C, C.T. 95 °C

INSTALLATION REQUIREMENT

Protection device and cable size are not published for this model. Confirm both with Sunniva before wiring — the rated current above is not sufficient to size them.

Maintain water flow of **9 m³/hr** through the unit.

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Manufacturer & exporter of heat pumps since 2012

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Premises CHS, New Link Road, Goregaon West, Mumbai

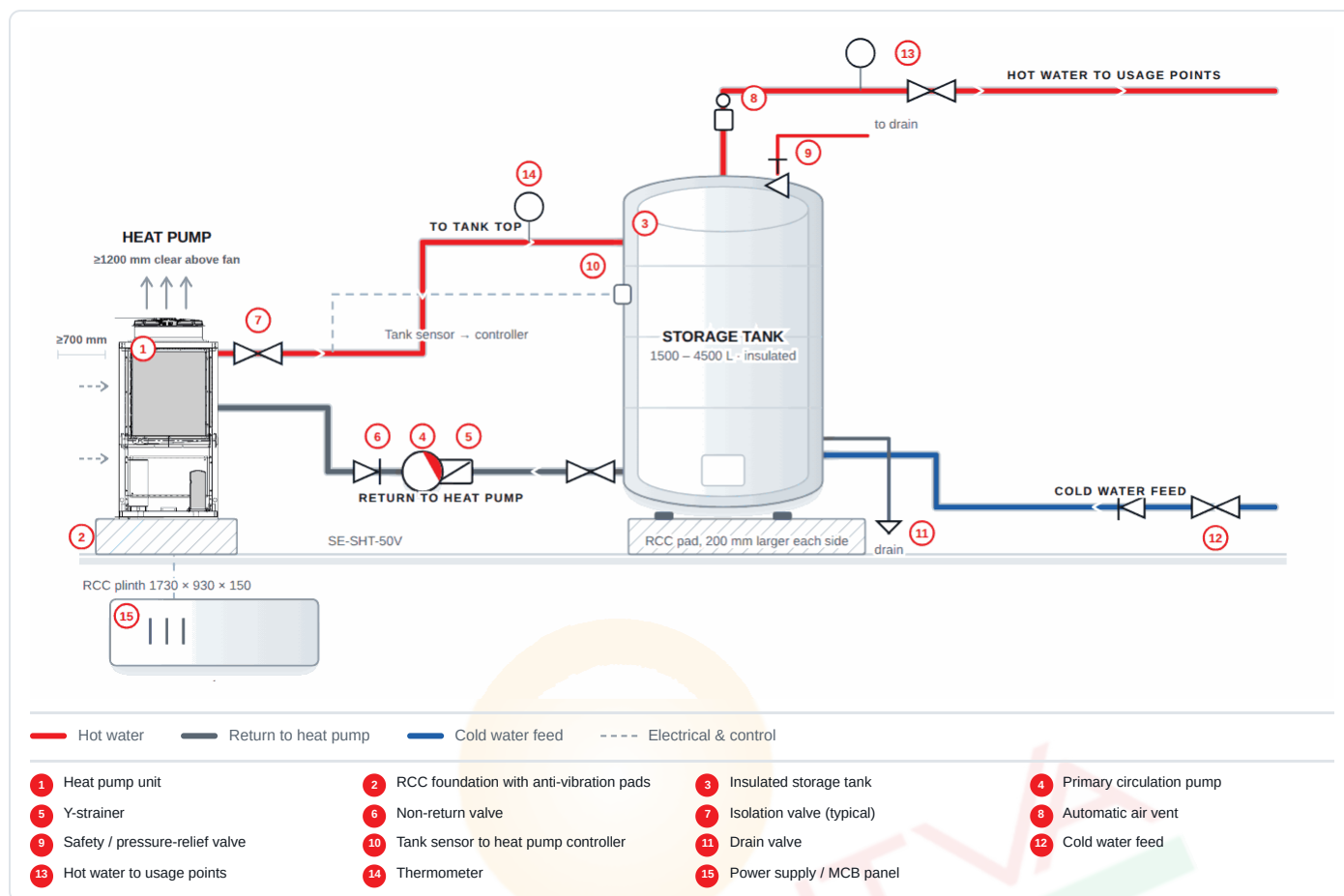
FACTORY

Tirupati Industrial Complex, Plot No. 41,
Sambhaji Nagar, Asangaon, Maharashtra 421601

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Site installation schematic How the unit connects to the tank, pumps and piping on site



Indicative hookup only. Static head, draw pattern and local code may call for additional components — confirm the final scheme with Sunniva before ordering.

Selection & site preparation Recommended sizing derived from this model's rated data

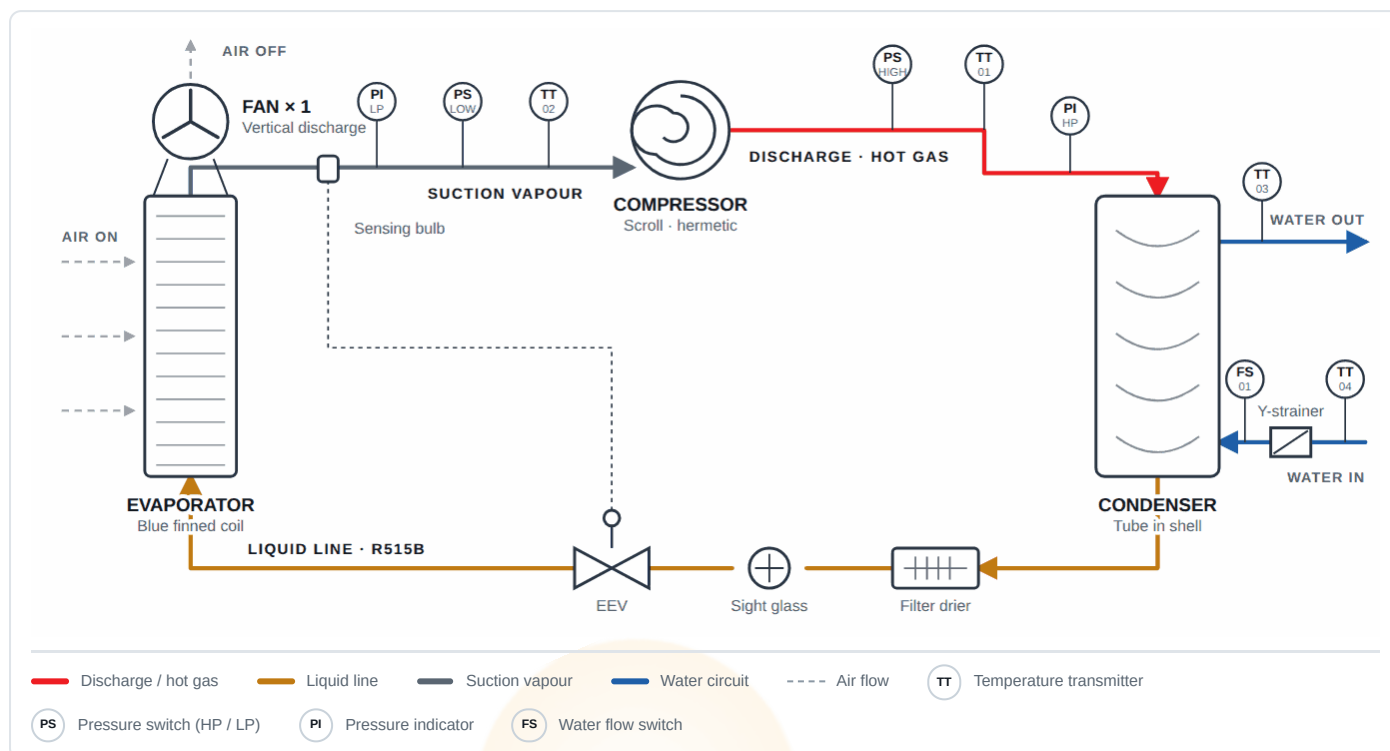
SYSTEM SIZING		CIVIL & ELECTRICAL	
Storage tank volume	1500 – 4500 L	Unit footprint & dry weight	1580 × 780 mm · 410 kg
Tank sizing rule	Hot water output × 2 to 6 LPH measured at 20 °C ambient. Indicative range — stay inside it so the tank is neither undersized nor oversized.	Heat pump plinth	1730 × 930 × 150 mm RCC, M20
Primary circulation pump	9.5 m ³ /hr @ 10 – 12 m head	Plinth level	100 mm above finished floor, ± 3 mm/m
Primary pipe size	40 mm (R1-1/2) to 10 m run; 50 mm beyond	Tank pad (1500 L)	150 mm RCC, 200 mm larger each side ≈ 1725 kg filled
Line insulation	25 mm closed-cell, every line above 45 °C	Clearances	700 mm air-on · 1200 mm above fan · 800 mm service side
		Electrical	MCB ·

Installation steps Follow in order; commission before start-up

- Cast the RCC plinth 1730 × 930 × 150 mm in M20 concrete, 100 mm above finished floor. Let it cure and check it is level within 3 mm per metre.
- Place the tank on its own level pad, as close to the heat pump as the site allows. Short pipes lose less heat.
- Pipe the heat pump outlet → tank top inlet. Fit an isolation valve at each end so the unit can be serviced without draining the tank.
- Bring the cold water feed into the tank bottom through an isolation valve and a non-return valve.
- Insulate every hot line with 25 mm closed-cell insulation, pump body included.
- Fill and vent the system fully. Confirm the flow switch stops the unit when the pump is off, then start.
- Set the unit down on anti-vibration pads. Keep 700 mm clear at the finned coil faces and 1200 mm above the fan — the unit must breathe or capacity drops.
- Pipe tank bottom → isolation valve → Y-strainer → primary pump → heat pump inlet, in that order. Fit the non-return valve after the pump.
- Fit the automatic air vent and the safety valve on the tank top. Pipe the safety valve discharge to an open drain — never cap it.
- Fit the tank sensor into the tank pocket and run its cable back to the heat pump controller. Do not run it alongside the power cable.
- Power the unit from a dedicated MCB using .

Process & instrumentation diagram

Refrigeration circuit, instrumentation and water connections



Schematic representation of the standard circuit — not to scale. Component arrangement may vary with build option.

Instrument schedule

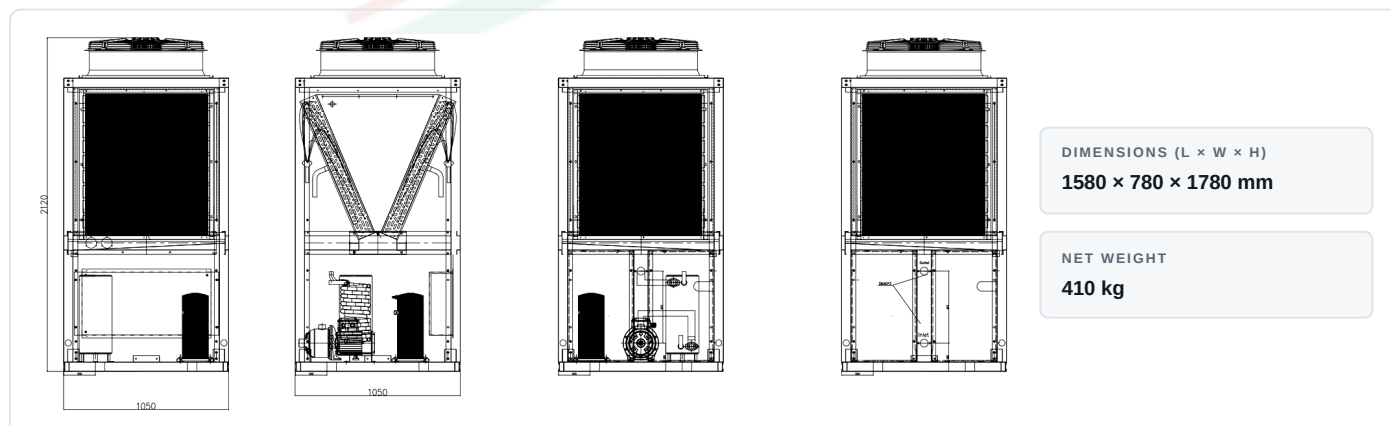
Tags as marked on the diagram above

TAG	DEVICE	FUNCTION
TT 01	Compressor discharge temperature	Discharge superheat & high-temperature cut-out
TT 02	Compressor suction temperature	Suction superheat monitoring
TT 03	Water outlet temperature	Set-point control
TT 04	Water inlet temperature	Return water sensing, ΔT calculation
PS HIGH	High-pressure switch	Discharge over-pressure cut-out

TAG	DEVICE	FUNCTION
PS LOW	Low-pressure switch	Loss-of-charge / low-suction cut-out
PI HP	High-side pressure gauge	Discharge pressure indication
PI LP	Low-side pressure gauge	Suction pressure indication
FS 01	Water flow switch	Interlock — no-flow lockout

Cabinet reference drawing

Typical general arrangement — this model's own dimensions alongside



Reference arrangement only — V-coil cabinet, vertical discharge. Dimensions printed on the drawing are indicative; the figures above and in the specification table are the ones that apply to this model.

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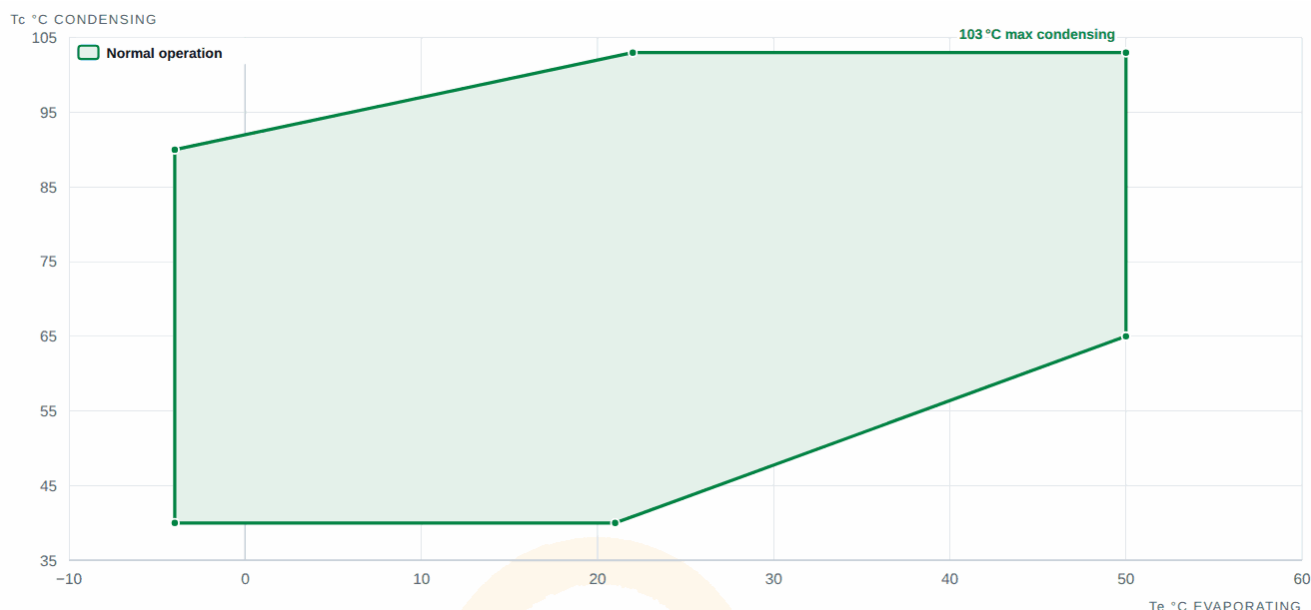
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Operating envelope The compressor's permitted window, in refrigeration terms

Operating envelope · R515B circuit

Condensing against evaporating temperature — the compressor's permitted operating window



ENVELOPE LIMITS

Evaporating temperature Te	-4 °C to 50 °C
Condensing temperature Tc	40 °C to 103 °C
Peak condensing	103 °C highest hot-water temperature the circuit can reach
Transient operation	Not applicable the envelope above is the continuous operating window

READING THE ENVELOPE

Te (evaporating) follows the source the unit draws heat from — the colder the air or source water, the lower Te sits.

Tc (condensing) follows the water leaving the unit — asking for 80 °C hot water puts Tc near the top of the envelope.

A duty is valid only **inside the shaded area**. A cold source combined with very hot water pushes the point towards the top-left, which is exactly where the envelope closes in — that corner is the real limit on winter performance.

Representative envelope for the R515B circuit, redrawn from the **Xecom / Embraco Nidec** scroll compressor selection guide, "Operating Envelop", XD*E panel. Envelope limits are broadly similar across compressor makes, so treat this as a representation of the circuit's operating window. Where a duty sits close to a boundary, confirm against the compressor fitted to the unit before finalising the design.

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