

SE-WWUHT SERIES

SE-WWUHT-25

Water-to-water single-cycle heat pump delivering pressurised hot water to 120 °C. R245fa, three-phase.
Both sides are water — there is no air coil and no fan.

www.sunnivaencon.com
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HEATING CAPACITY

27 kW

At T1 · Rated duty

PEAK COP

2.93

At T1 · Rated duty

MAX WATER TEMP

120 °C

Rated outlet

COOLING CAPACITY

17.7 kW

Simultaneous, at the rated duty

Performance

Rated output at each test condition

T1 Rated duty

Heating capacity **27 kW**

Power input **9.2 kW**

COP **2.93**

Water flow **4.5 m³/hr**

Technical specifications

SE-WWUHT-25

ELECTRICAL SUPPLY

Power supply — **380–415 V / 50 Hz / 3 Ph**

Rated input power kW **9.2**

Rated current A **25.88**

REFRIGERATION CIRCUIT

Compressor — **Scroll (Xecom)**

Number of compressors Nos **1**

Refrigerant — **R245fa**

Heat exchanger (condenser) — **Brazed plate heat exchanger**

Throttling device — **Electronic expansion valve**

WATER CIRCUIT

Maximum water temperature °C **120**

Water flow m³/hr **4.5**

Water pipe size inch **R1-1/4**

Rated pressure bar **2**

Rated steam output kg/hr **40**

UNIT & ACOUSTICS

Dimensions (L × W × H) mm **860 × 780 × 850**

Net weight kg **230**

Noise at 1 metre dB(A) **≤ 60**

TEST CONDITIONS

Rated duty — evaporator side in / out 60 / 55 °C, condenser side in / out 115 / 120 °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 **4.5 m³/hr** through the unit.

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C-443, Oshiwara Industrial Centre
Premises CHS, New Link Road, Goregaon West, Mumbai

FACTORY

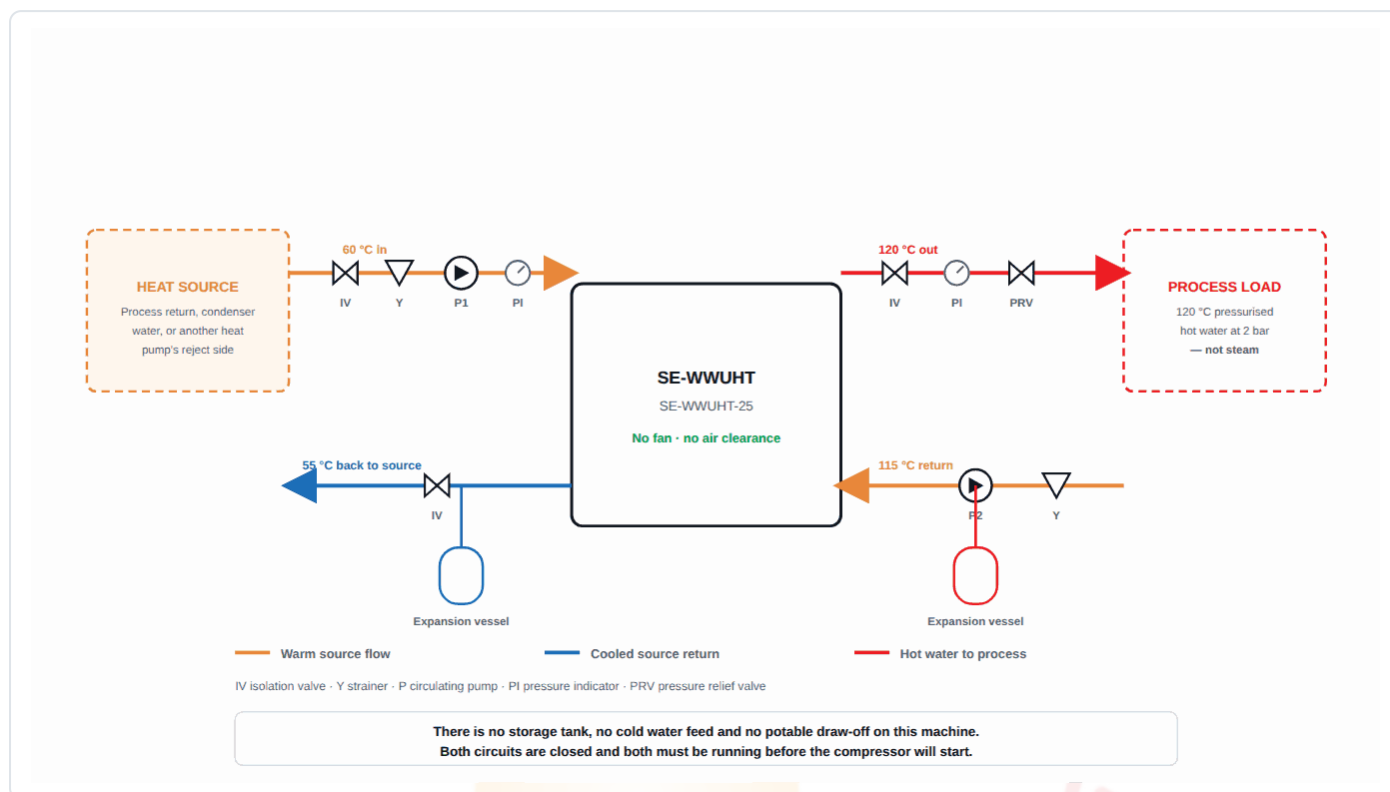
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Site installation schematic

How the source loop and the delivery loop connect 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	
Source loop flow	4.5 m ³ /hr through the evaporator
Heat the source must give up	17.7 kW at the rated duty. This is not optional — if the source cannot release it, the machine makes less heat than the nameplate.
Minimum source temperature	Confirm with Sunniva. The R245fa compressor window starts at 22 °C evaporating; too cold a source puts the machine outside its permitted envelope, not merely off its rating.
Delivery loop flow	4.5 m ³ /hr through the condenser
Pipe size, both loops	R1-1/4
Line insulation	Both loops, rated for 125 °C on the delivery side

CIVIL & ELECTRICAL	
Unit footprint & dry weight	860 × 780 mm · 230 kg
Plinth	1010 × 930 × 150 mm RCC, M20
Plinth level	100 mm above finished floor, ± 3 mm/m
Clearances	600 mm all round for service access. No air clearance is required — there is no fan.
Electrical	Not published for this model — confirm with Sunniva

Installation steps

Follow in order; commission before start-up

- Cast the plinth 1010 × 930 × 150 mm in M20 concrete, 100 mm above finished floor. Indoor or under cover; this machine does not need to see outdoor air.
- Set the unit on anti-vibration pads and level it to ± 3 mm/m.
- Pipe the source loop from the process return through an isolation valve, a Y-strainer and the circulating pump into the evaporator, and return it to the source. Size for 4.5 m³/hr.
- Pipe the delivery loop from the condenser to the process load and back, with an isolation valve, pressure indicator and a pressure relief valve on the flow. The circuit is pressurised — treat it as a hot water system, not a steam one.
- Fit an expansion vessel on each loop, sized to the loop volume and its working temperature. The delivery side runs at up to 125 °C.
- Fit a flow switch in each loop and interlock both to the compressor. Neither loop may be dry when the machine starts.
- Insulate both loops. The delivery side is a burn risk at 120 °C.
- Confirm the protection device and cable with Sunniva before wiring — they are not published for this model.
- On commissioning, prove the source can hold its temperature at full duty before signing off the heating output.

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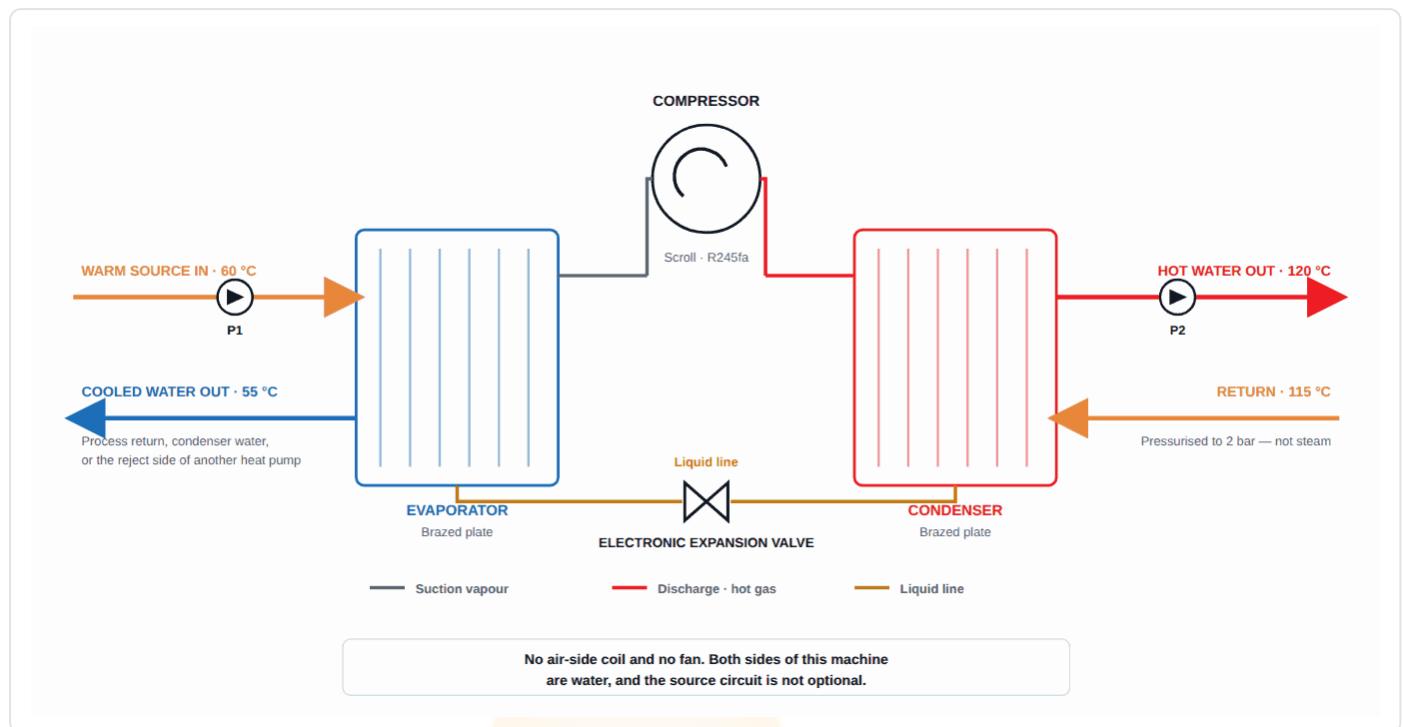
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Process & instrumentation diagram

Refrigeration circuit, instrumentation and water connections



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

Instrument schedule

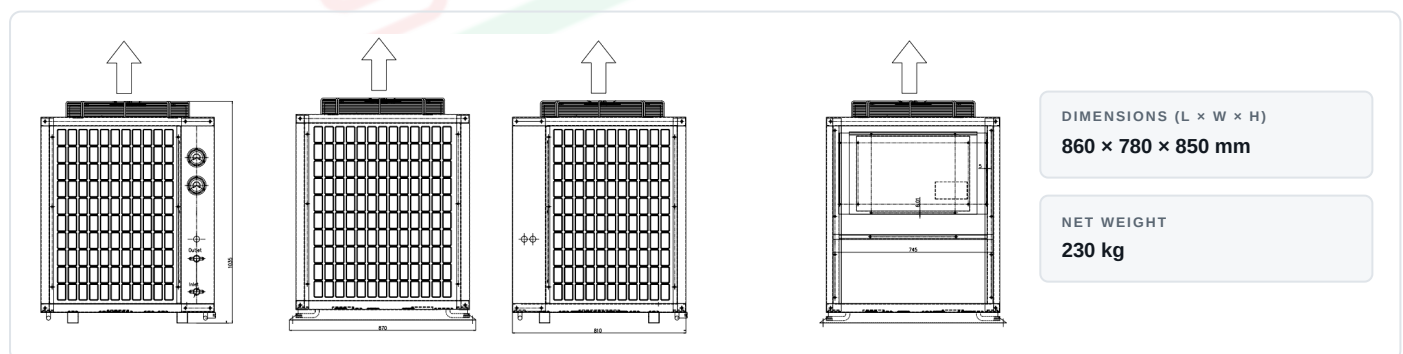
Tags as marked on the diagram above

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 — Single-compressor 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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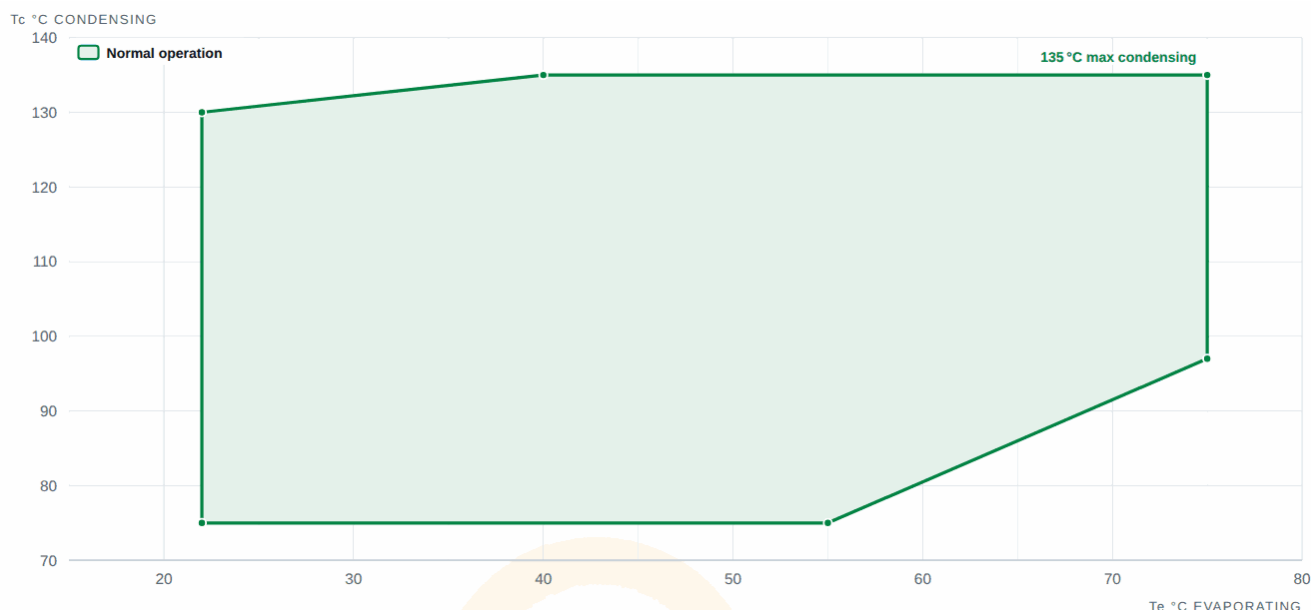
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Operating envelope

The compressor's permitted window, in refrigeration terms

Operating envelope · R245fa circuit

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



ENVELOPE LIMITS

Evaporating temperature T_e	22 °C to 75 °C
Condensing temperature T_c	75 °C to 135 °C
Peak condensing	135 °C highest hot-water temperature the circuit can reach
Transient operation	Not applicable the envelope above is the continuous operating window

READING THE ENVELOPE

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

T_c (condensing) follows the water leaving the unit — asking for 80 °C hot water puts T_c 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 R245fa circuit, redrawn from the Xecom / Embraco Nidec scroll compressor selection guide, "Operating Envelop", XD*G 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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