SE-WWUHT SERIES

SE-WWUHT-50

Water-to-water single-cycle heat pump delivering pressurised hot water to 125 °C. R245fa, three-phase. Both sides are water — there is no air coil and no fan.

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HEATING CAPACITY
49.7 kW
At T1 · Rated duty

PEAK COP
2.99
At T1 · Rated duty

MAX WATER TEMP
125 °C
Rated outlet

COOLING CAPACITY
32.9 kW
Simultaneous, at the rated duty

Performance

Rated output at each test condition

T1 Rated duty

Heating capacity	**49.7 kW**
Power input	**16.6 kW**
COP	**2.99**
Water flow	**8.6 m³/hr**

Technical specifications

SE-WWUHT-50

ELECTRICAL SUPPLY		
Power supply	—	**380~415 V / 50 Hz / 3 Ph**
Rated input power	kW	**16.6**
Rated current	A	**34.27**
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	**125**
Water flow	m³/hr	**8.6**
Water pipe size	inch	**R1-1/2**
Rated pressure	bar	**2**
UNIT & ACOUSTICS		
Dimensions (L × W × H)	mm	**1550 × 780 × 850**
Net weight	kg	**400**
Noise at 1 metre	dB(A)	**≤ 62**

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 **8.6 m³/hr** through the unit.

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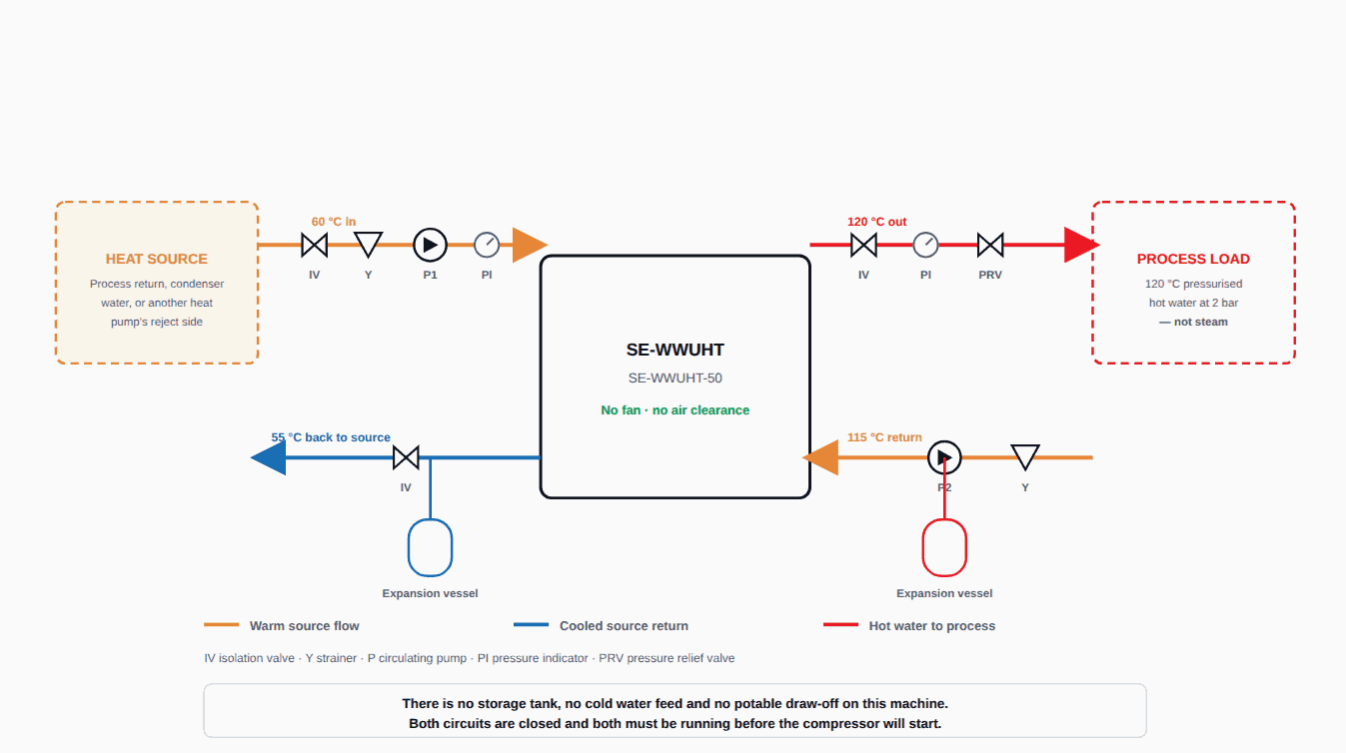
Site installation schematic

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	**8.6 m³/hr through the evaporator**
Heat the source must give up	**32.9 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	**8.6 m³/hr through the condenser**
Pipe size, both loops	**R1-1/2**
Line insulation	**Both loops, rated for 125 °C on the delivery side**

CIVIL & ELECTRICAL	
Unit footprint & dry weight	**1550 × 780 mm · 400 kg**
Plinth	**1700 × 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

1. Cast the plinth **1700 × 930 × 150 mm** in M20 concrete, 100 mm above finished floor. Indoor or under cover; this machine does not need to see outdoor air.
2. Set the unit on anti-vibration pads and level it to ± 3 mm/m.
3. 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 **8.6 m³/hr**.
4. 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.
5. 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.
6. Fit a flow switch in each loop and interlock both to the compressor. **Neither loop may be dry when the machine starts.**
7. Insulate both loops. The delivery side is a burn risk at 120 °C.
8. Confirm the protection device and cable with Sunniva before wiring — they are not published for this model.
9. On commissioning, prove the source can hold its temperature at full duty before signing off the heating output.

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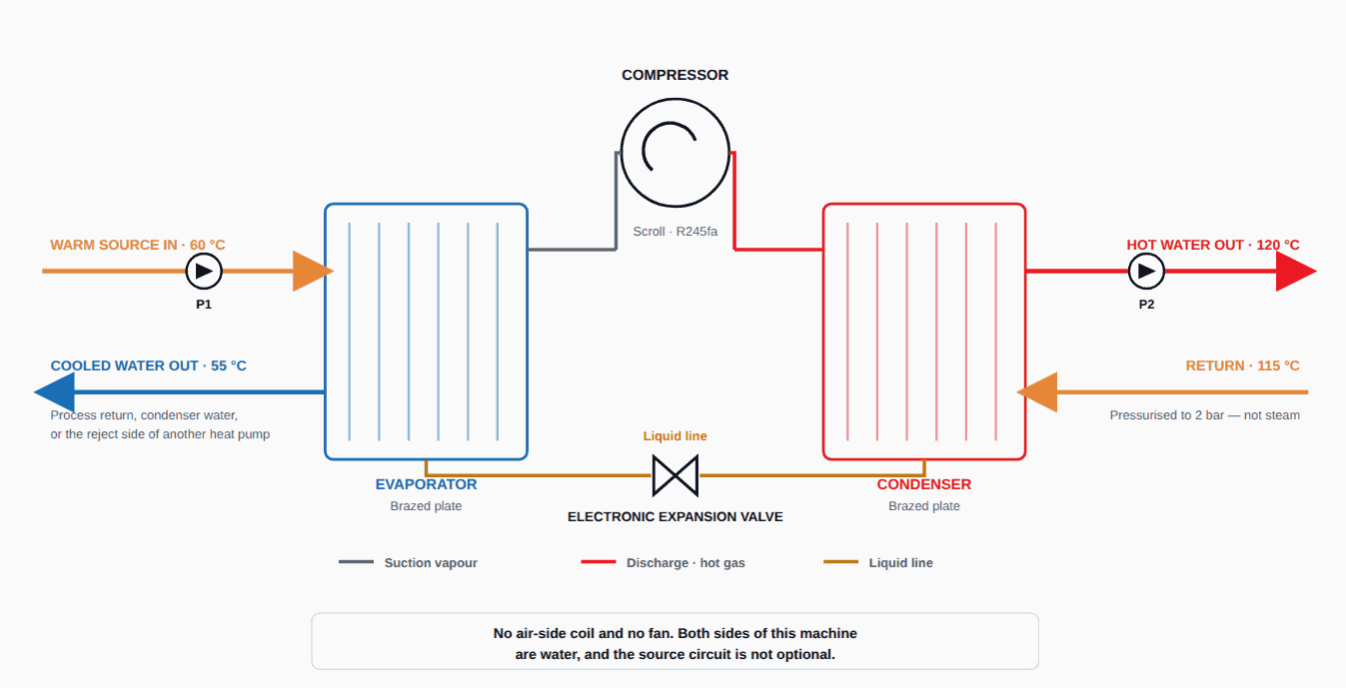
Process & instrumentation diagram

Refrigeration circuit, instrumentation and water connections



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

Instrument schedule

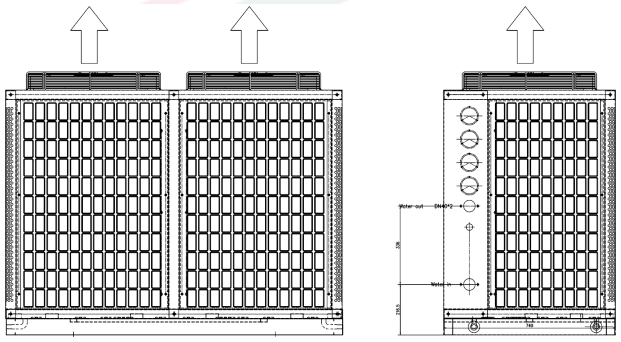
Tags as marked on the diagram above

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



DIMENSIONS (L × W × H)
1550 × 780 × 850 mm

NET WEIGHT
400 kg

Reference arrangement only — Twin-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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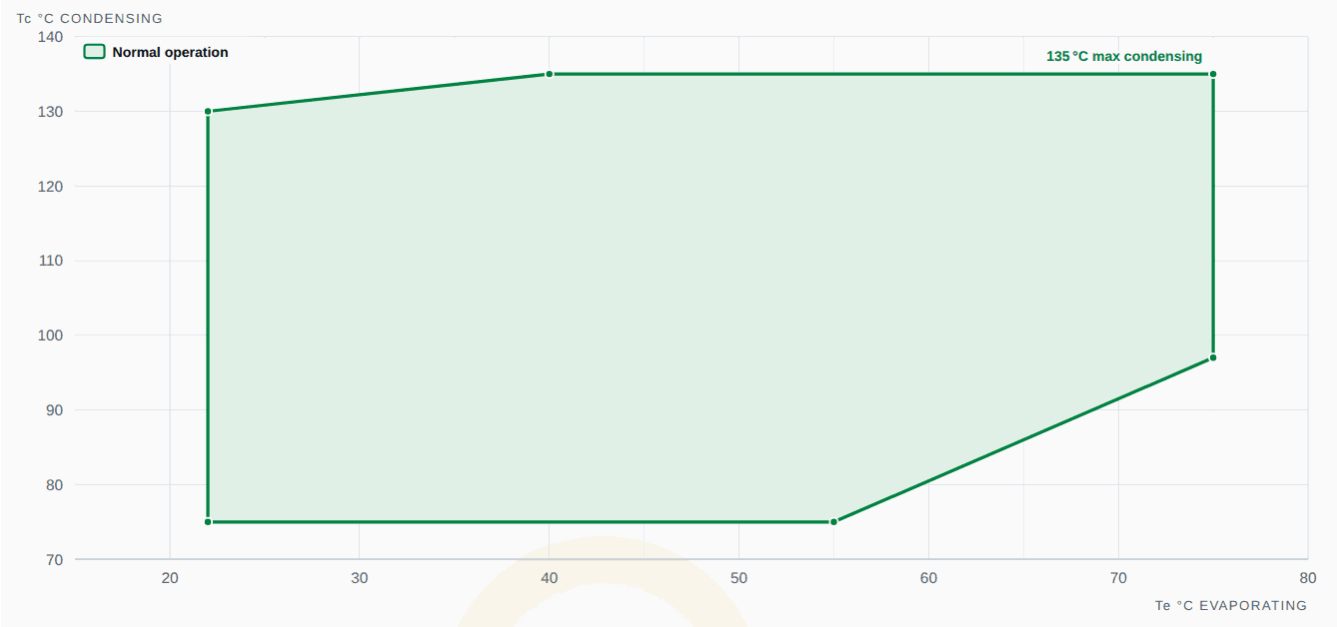
Operating envelope

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 Te	**22 °C to 75 °C**
Condensing temperature Tc	**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

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 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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