

SE-AH MONOBLOCK SERIES

SE-AH-10M

Residential monoblock with the water circulation pump built in — pipe it and plug it in. Hot water to 60 °C, R410A rotary circuit, single-phase, rated from -7 °C ambient. Reversible: hot water in winter, chilled water in summer.

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HEATING CAPACITY

9.3 kW

At T1 · Rated duty

PEAK COP

4.0

At T1 · Rated duty

MAX WATER TEMP

60 °C

Rated outlet 55 °C

HOT WATER OUTPUT

280 LPH

At T1 · Rated duty

COOLING CAPACITY

6.5 kW

In cooling mode · not at the same time as hot water

COOLING COP

2.8

At the rated cooling duty

Performance

Rated output at each test condition

T1 Rated duty

Heating capacity	9.3 kW
Power input	2.33 kW
COP	4.0
Hot water output	280 LPH

Technical specifications

SE-AH-10M

ELECTRICAL SUPPLY

Power supply	—	220 V-240 V / 50 Hz / 1 Ph
Rated input power	kW	2.33
Rated current	A	11.20
Required MCB	—	25 A × 4 pole
Required cable	—	3 core × 2.5 sq.mm copper cable + earthing

REFRIGERATION CIRCUIT

Compressor	—	Rotary / GMCC
Number of compressors	Nos	1
Refrigerant	—	R410A
Heat exchanger (condenser)	—	Tube in shell
Throttling device	—	Electronic expansion valve
Fan quantity	Nos	1
Fan input	W	50
Operating ambient range	°C	-7 to 43

WATER CIRCUIT

Rated water temperature	°C	55
Maximum water temperature	°C	60 / min 7
Water flow	—	Built-in pump
Water pipe size	inch	Rc3/4

UNIT & ACOUSTICS

Dimensions (L × W × H)	mm	1110 × 400 × 750
Net weight	kg	85
Noise at 1 metre	dB(A)	<57

TEST CONDITIONS

Rated duty — Ambient 30/25 °C (DB/WB)
Heating mode — water in / out 25 / 55 °C
Cooling mode — water in / out 25 / 10 °C

INSTALLATION REQUIREMENT

Dedicated **25 A × 4 pole** MCB required at the unit.
Supply cable **3 core × 2.5 sq.mm** copper, with separate earthing.
Do not fit a primary circulation pump — it is inside the unit (Sunniva/Shimge).
Pipe flow and return straight to the cylinder and fit a Y-strainer on the return.

SUNNIVA ENCON LLP

Manufacturer & exporter of heat pumps since 2012

OFFICE

C-443, Oshiwara Industrial Centre
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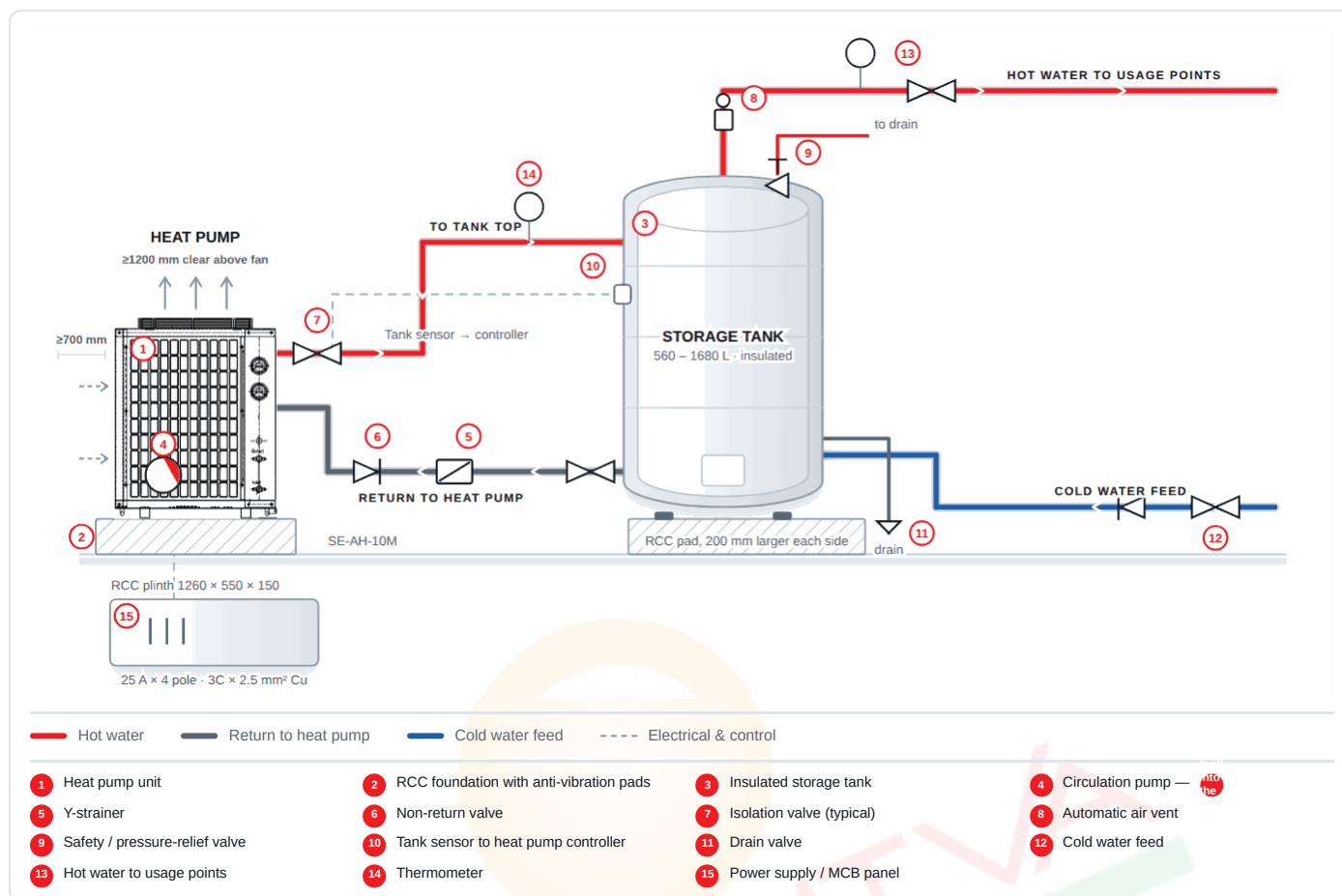
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Site installation schematic



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

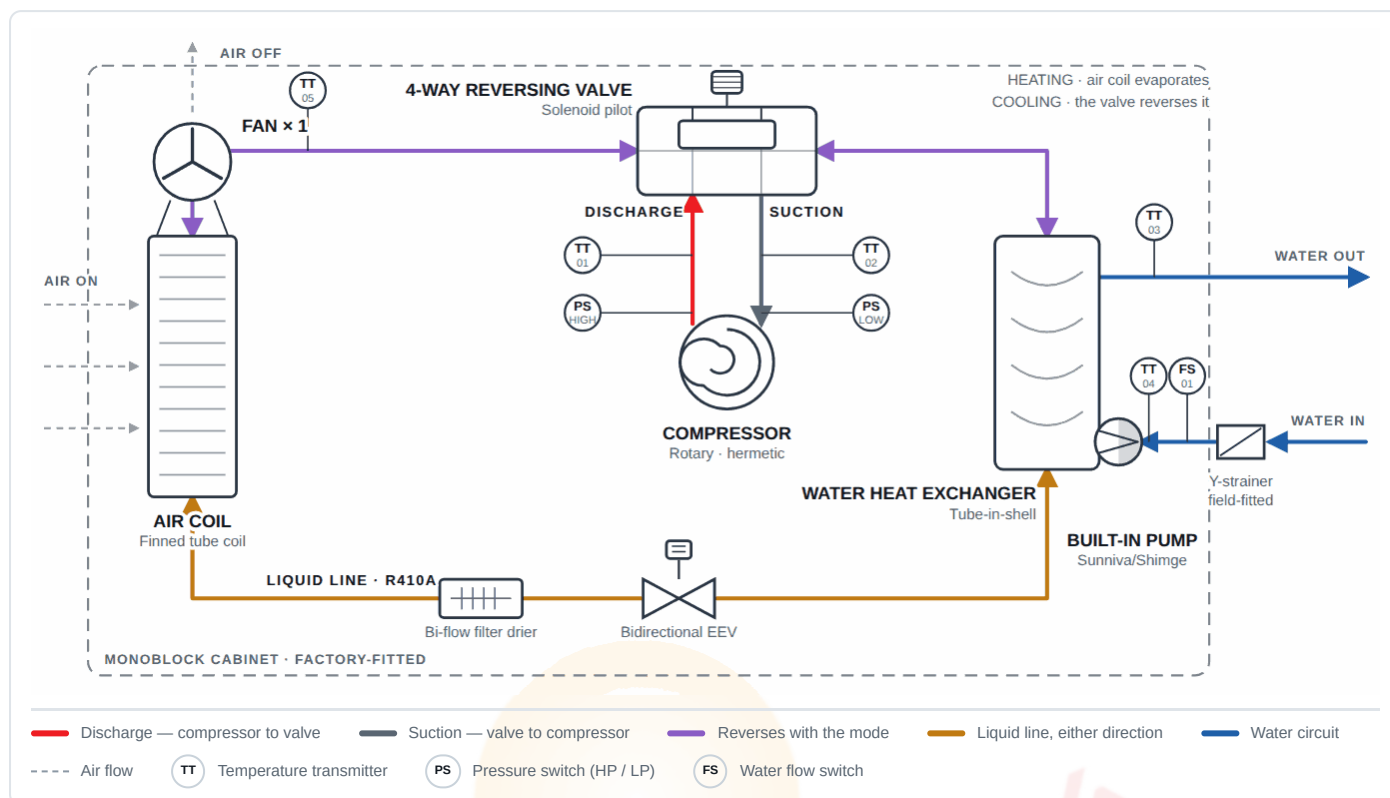
SYSTEM SIZING		CIVIL & ELECTRICAL	
Storage tank volume	560 – 1680 L	Unit footprint & dry weight	1110 × 400 mm · 85 kg
Tank sizing rule	Hot water output × 2 to 6 LPH measured at 30 °C ambient, 55 °C water. Indicative range — stay inside it so the tank is neither undersized nor oversized.	Heat pump plinth	1260 × 550 × 150 mm RCC, M20
Circulation pump	Built into the unit — Sunniva/Shimge. Do not fit a second primary pump: pipe the flow and return straight to the cylinder.	Plinth level	100 mm above finished floor, ± 3 mm/m
Primary pipe size	25 mm (Rc3/4) to 10 m run; 32 mm beyond	Tank pad (560 L)	150 mm RCC, 200 mm larger each side ≈ 644 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	25 A × 4 pole MCB · 3 core × 2.5 sq.mm copper cable + earthing

Installation steps Follow in order; commission before start-up

- 1 Cast the RCC plinth **1260 × 550 × 150 mm** in M20 concrete, 100 mm above finished floor. Let it cure and check it is level within 3 mm per metre.
- 3 Place the tank on its own level pad, as close to the heat pump as the site allows. Short pipes lose less heat.
- 5 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.
- 7 Bring the **cold water feed** into the tank bottom through an isolation valve and a non-return valve.
- 9 Insulate every hot line with **25 mm closed-cell** insulation, pump body included.
- 11 Fill and vent the system fully. Confirm the flow switch stops the unit when the pump is off, then start.
- 2 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.
- 4 Pipe **tank bottom** → **isolation valve** → **Y-strainer** → **primary pump** → **heat pump inlet**, in that order. Fit the non-return valve after the pump.
- 6 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.
- 8 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.
- 10 Power the unit from a dedicated **25 A × 4 pole** MCB using 3 core × 2.5 sq.mm copper cable + earthing.

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

TAG	DEVICE	FUNCTION
TT 05	Air coil temperature	Defrost initiation and termination — the coil frosts below roughly 5 °C ambient
PS HIGH	High-pressure switch	Discharge over-pressure cut-out
PS LOW	Low-pressure switch	Loss-of-charge / low-suction cut-out
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)
1110 × 400 × 750 mm

NET WEIGHT
85 kg

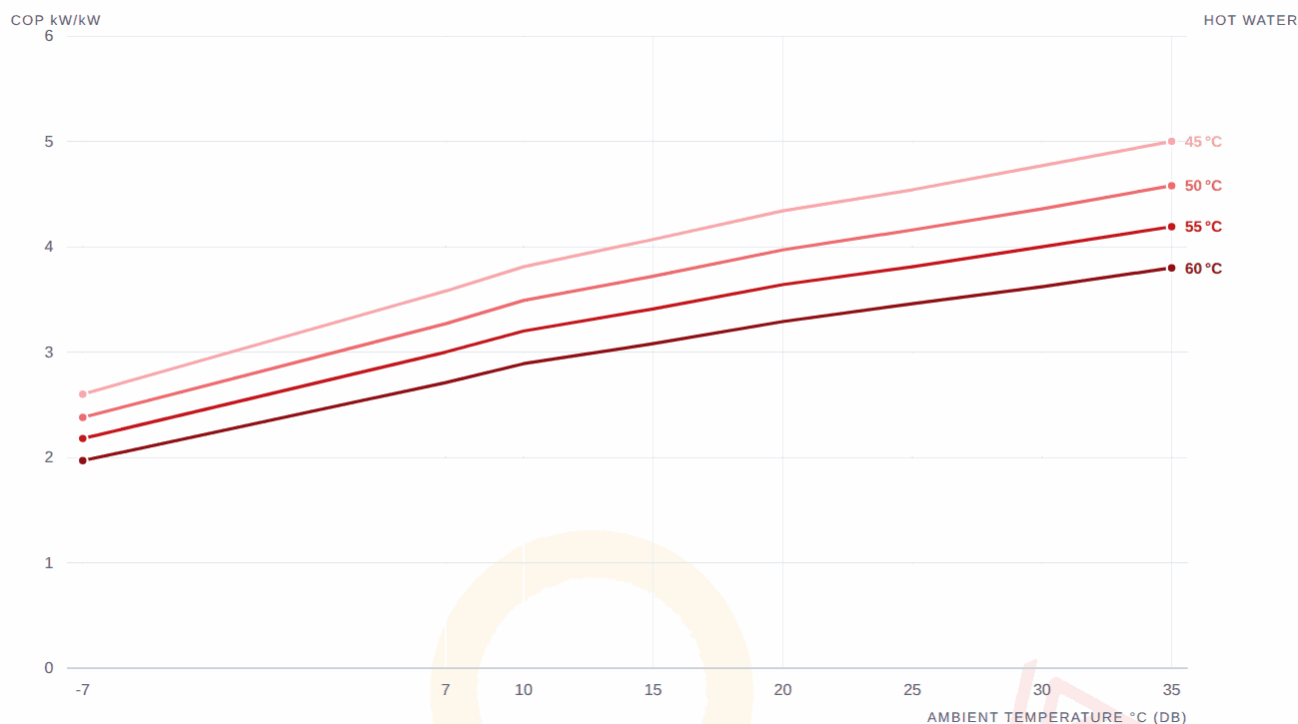
The general-arrangement drawing for the monoblock cabinet is not published yet. The dimensions and net weight above are this model's own, off its data sheet; ask Sunniva for a dimensioned drawing before cutting an opening or fabricating a bracket.

COP characteristic

Full performance map across the operating envelope

COP · heating duty

COP against ambient temperature, one curve per hot-water outlet temperature



COP · HOT WATER : / AMBIENT °C →	-7	7	10	15	20	25	30	35
45 °C	2.60	3.58	3.81	4.07	4.34	4.54	4.77	5.00
50 °C	2.38	3.27	3.49	3.72	3.97	4.16	4.36	4.58
55 °C	2.18	3.00	3.20	3.41	3.64	3.81	4.00	4.19
60 °C	1.97	2.71	2.89	3.08	3.29	3.46	3.62	3.80

HOW TO READ THIS

Shape from the R410A air-to-water map; level set to this model's own rated COP of 4.00 at 30 °C ambient and 55 °C water, and cut off at the -7 °C ambient this range is rated to. The figure on page 1 is the measured one; this map is how the circuit behaves around it, not a second measurement.

Where a figure on this map differs from the rated point on page 1, **the map governs** — it is measured across the full operating envelope, while the rated point is a single certified test condition.

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