

SE-AH MONOBLOCK SERIES

SE-AH-4M

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.

www.sunnivaencon.com
+91 93213 65103
sales@sunnivaencon.com



HEATING CAPACITY

3.5 kW

At T1 · Rated duty

PEAK COP

4.12

At T1 · Rated duty

MAX WATER TEMP

60 °C

Rated outlet 55 °C

HOT WATER OUTPUT

105 LPH

At T1 · Rated duty

COOLING CAPACITY

2.5 kW

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

COOLING COP

2.9

At the rated cooling duty

Performance

Rated output at each test condition

T1 Rated duty

Heating capacity **3.5 kW**

Power input **0.85 kW**

COP **4.12**

Hot water output **105 LPH**

Technical specifications

SE-AH-4M

ELECTRICAL SUPPLY

Power supply	—	220 V-240 V / 50 Hz / 1 Ph
Rated input power	kW	0.85
Rated current	A	4.07
Required MCB	—	16 A × 2 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	25
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	930 × 350 × 550
Net weight	kg	48
Noise at 1 metre	dB(A)	≤ 54

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 **16 A × 2 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
Premises CHS, New Link Road, Goregaon West, Mumbai

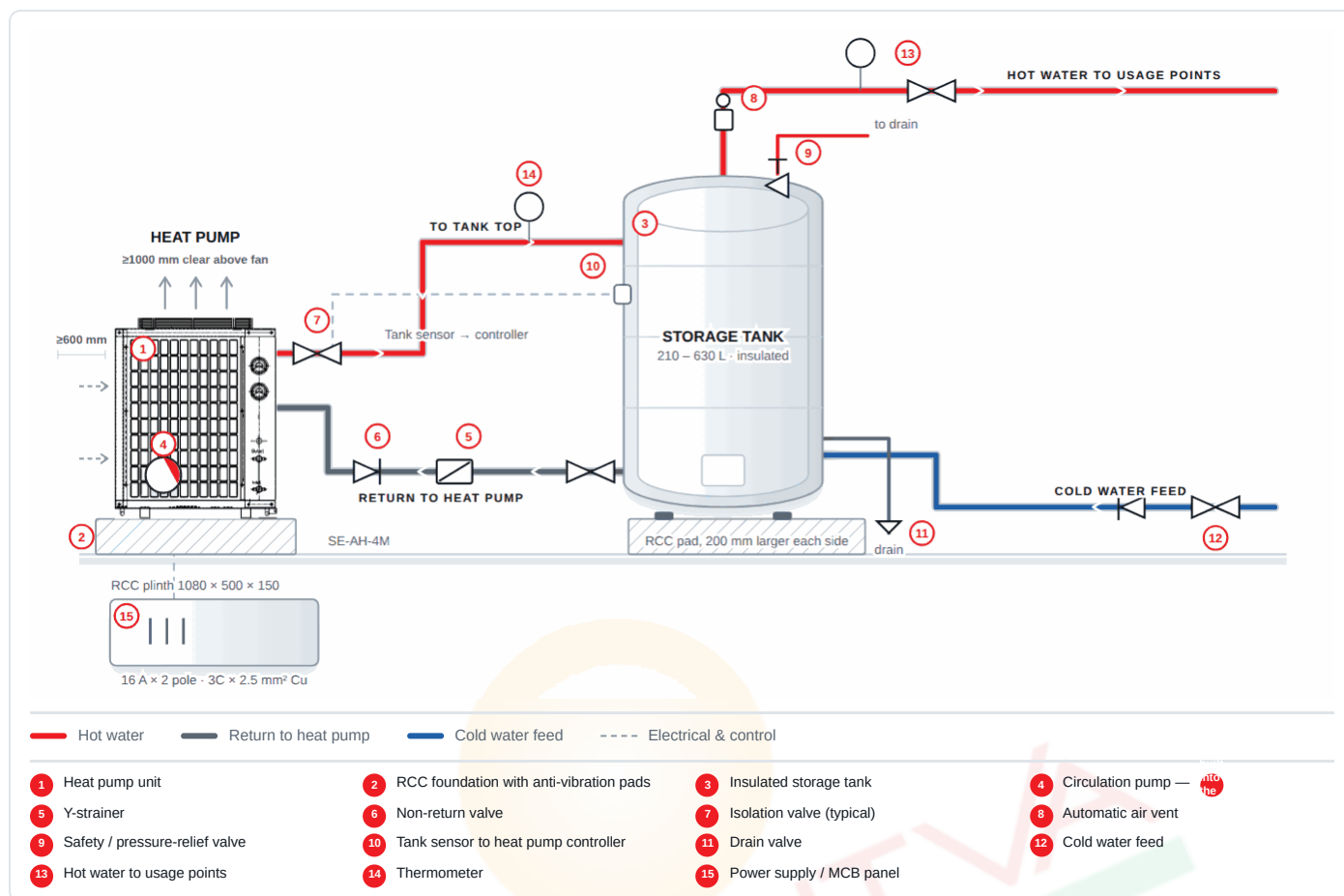
FACTORY

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

CONTACT

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sales@sunnivaencon.com
www.sunnivaencon.com

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

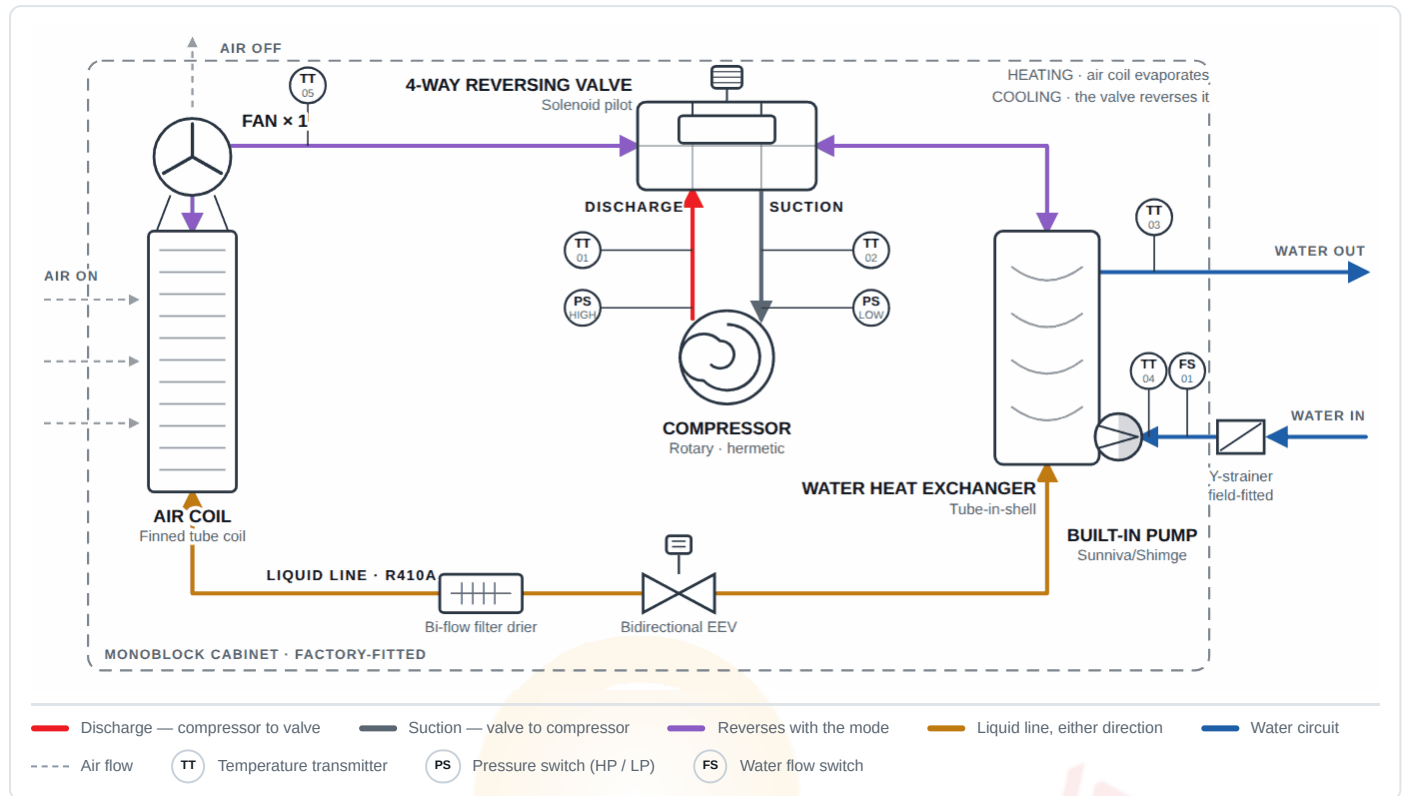
SYSTEM SIZING		CIVIL & ELECTRICAL	
Storage tank volume	210 – 630 L	Unit footprint & dry weight	930 × 350 mm · 48 kg
Tank sizing rule	Hot water output × 2 to 6 LPH measured at 30 °C ambient, 55 °C water. Indicative range — stay inside it so the tank is neither undersized nor oversized.	Heat pump plinth	1080 × 500 × 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
		Tank pad (210 L)	150 mm RCC, 200 mm larger each side ≈ 241 kg filled
Primary pipe size	25 mm (Rc3/4) to 10 m run; 32 mm beyond	Clearances	600 mm air-on · 1000 mm above fan · 800 mm service side
Line insulation	25 mm closed-cell, every line above 45 °C	Electrical	16 A × 2 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 **1080 × 500 × 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 **600 mm clear** at the finned coil faces and **1000 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 **16 A × 2 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)
930 × 350 × 550 mm

NET WEIGHT
48 kg

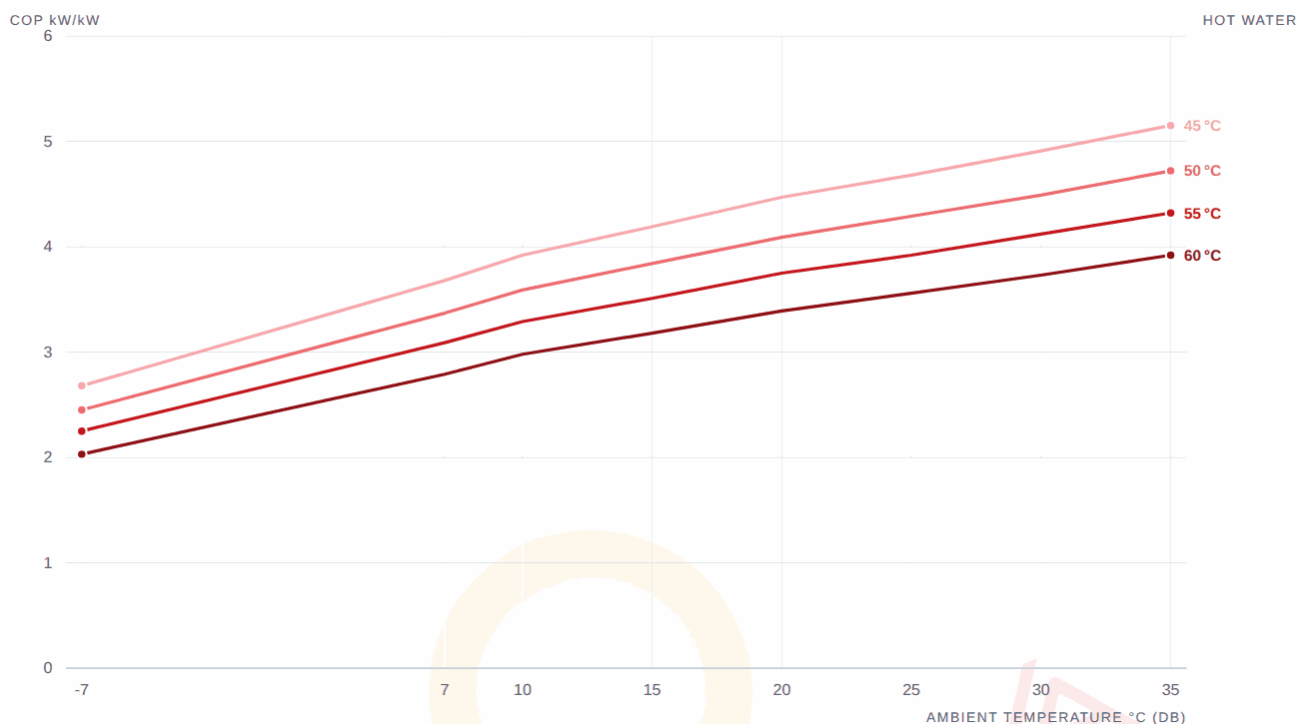
The general-arrangement drawing for the monoblock cabinet is not published yet. The dimensions and net weight above are this model's own, off its data sheet; ask Sunniva for a dimensioned drawing before cutting an opening or fabricating a bracket.

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	2.68	3.68	3.92	4.19	4.47	4.68	4.91	5.15
50 °C	2.45	3.37	3.59	3.84	4.09	4.29	4.49	4.72
55 °C	2.25	3.09	3.29	3.51	3.75	3.92	4.12	4.32
60 °C	2.03	2.79	2.98	3.18	3.39	3.56	3.73	3.92

HOW TO READ THIS

Shape from the R410A air-to-water map; level set to this model's own rated COP of 4.12 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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