



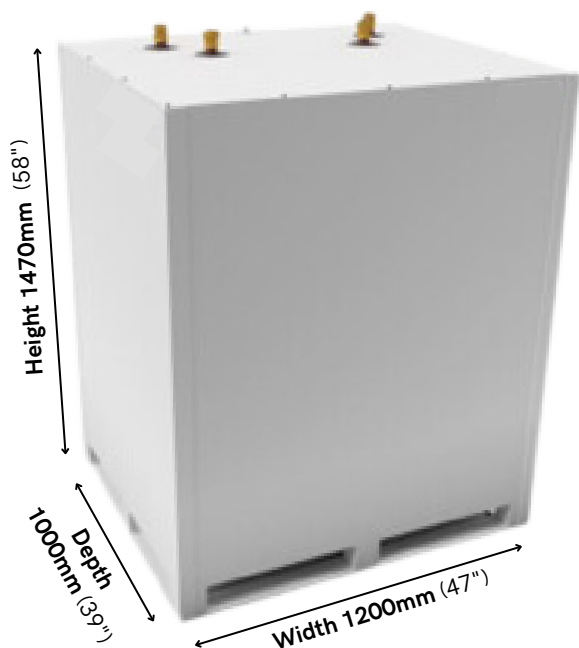
# Preliminary Product Notification

## Sunamp Permafrost<sup>®</sup> Mini (P11)

### Thermal storage solution for decarbonising cooling

Permafrost Mini (P11) is an advanced and compact thermal battery using Phase Change Material. Permafrost Mini (P11) contains our Plentigrade (P11) material and a powerful heat exchanger and is suitable for dynamic cooling applications such as air conditioning or applications that use the Plentigrade (P11) material as a sink source.

Permafrost Mini (P11) has two independent hydronic circuits, high power (HPC) and low power (LPC) which can be configured to suit the application.



Typically during the charging period, the return temperature will be close to the phase change material temperature. Figures will differ according to application.

<sup>1</sup> You should achieve this temperature or lower to ensure that the latent storage capacity of the cold battery is fully used

<sup>2</sup> Reference conditions 8 - 16 °C (46.4 - 60.8 °F)

<sup>3</sup> Reference conditions 20 °C (68 °F)

<sup>4</sup> Calculated using US gallons.

#### Charging source temperature

Maximum flow - inlet	8 °C (46.4 °F)
Minimum flow - inlet	0 °C (32 °F)
Typical return - outlet - when charged	9 °C (48.2 °F) <sup>1</sup>

#### Discharging load temperature

Design flow - outlet	12 °C (53.6 °F)
Maximum inlet for discharging	50 °C (122 °F)

Nominal storage capacity <sup>2</sup>	33 kWh (112.6 kBTU)
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Standby stored energy loss rate <sup>3</sup>	0.66 kWh/24h (2.25 kBTU/24h)
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Weight	1,268 kg (2,795 lbs)
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#### Minimum flow rates

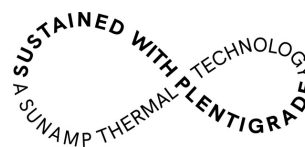
Low power circuit (LPC)	15 l/min (4 gal/min)
High power circuit (HPC)	21 l/min (5.5 gal/min)

#### Maximum flow rates

Low power circuit (LPC)	40 l/min (10.6 gal/min) <sup>4</sup>
High power circuit (HPC)	50 l/min (13 gal/min)

#### Maximum working pressure (hydraulic circuit)

1.6 MPa (16 bar)



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