

LocCool

Passive Temperature Management For Equipment Enclosures

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RTSA Presentation
Wellington October 2018

The management of internal ambient temperatures within enclosures is usually quite expensive and maintenance intensive, the Creative Design solution is neither of these.

The system is made up of two components:



External enclosure panel fitment

Reducing the effects of the sun or Solar Gain

This can be as much as 1.5kw p/m^2
and has an immediate impact on the internal
ambient temperature

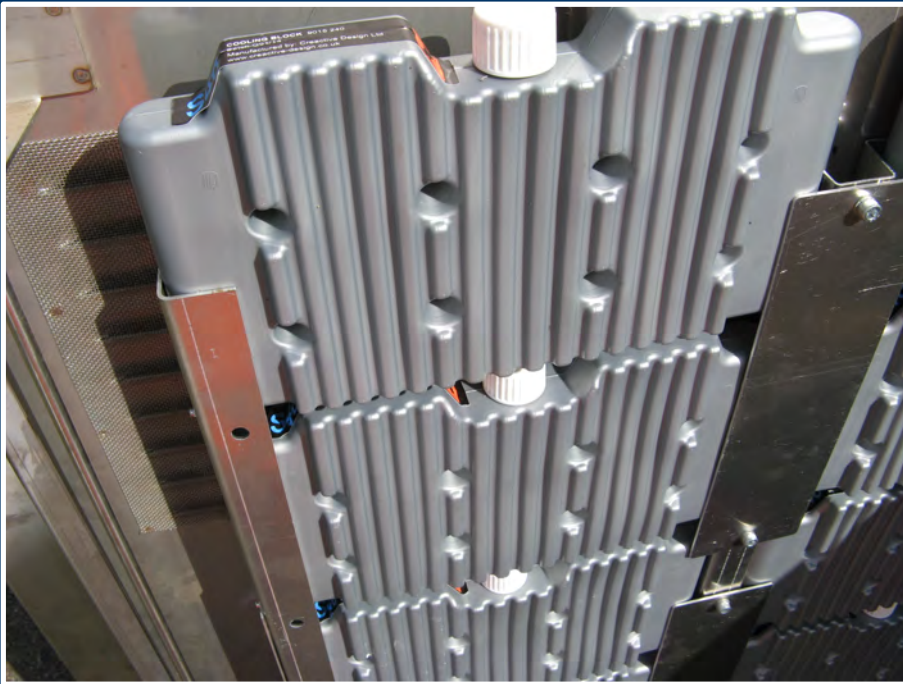
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The installation of TMB's temperature management blocks, into the interior of the enclosure to absorb the heat energy and store it

As seen in the picture, fitted to the inside of the location case door

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The Blocks contain a Phase Change Material – PCM27 PCM 34 & PCM46

Sodium Thiosulphate
with Water Crystal Habit Modifiers

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The flow of air around the exterior of the enclosure and its subsequent dispersal is crucial in removing heat from the enclosure, the blocks both capture the heat energy from within and also insulate the enclosure from further influence of the high temperatures outside

This combination has proven to be the most effective way of managing temperatures without the need for HVAC or other forced air methods in areas where power availability is limited or non-existent

The configuration is scalable, allowing enclosures of different physical sizes to be quickly and easily assessed as to the level of heat management required, computations are made using state of the art tools to determine the most cost effective way of maintaining an ambient working temperature for the equipment in need of protection

Generally there is a drop in temperature through the evening and night time allowing the system to cycle, as the temperature lowers, the TMB's dissipate the collected heat both to the exterior and also to the now cooler interior of the enclosure preparing themselves for the start of the next temperature rise

The outcome of this cycle is that heat is drawn out of the inside of the enclosures during the peak time when temperatures are at their highest and re introduced during cooler night time periods. Thus giving a much flatter temperature curve

Correlated data in other regions shows that by using the system the reduction in internal ambient temperature can be as much as 83% depending on location and other attributes

Average = 30%

Other regions do include Australia & the United Kingdom

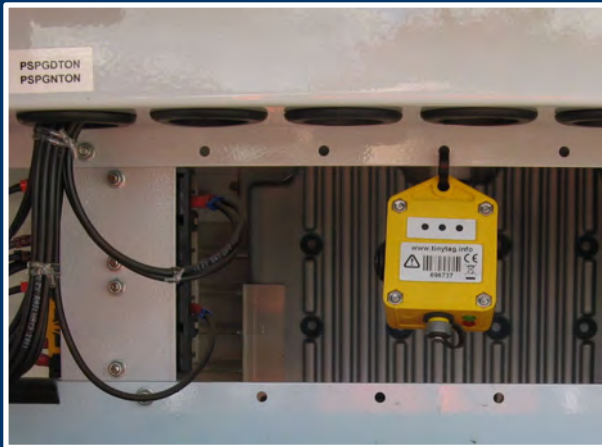


Metro Trains Melbourne evaluated the performance of this concept by way of a trial in the Melbourne area.

10 location cases were chosen that had previous temperature related "issues"

LocCool was fitted at these sites





Date	Time	Max External	Max Internal
02/01/2015	18.22 HRS	40.500 ° C	43.275 ° C
03/01/2015	16:02 HRS	39.400 ° C	42.277 ° C
07/01/2015	15.22 HRS	40.300 ° C	43.558 ° C

Temperature data provided by Metro Trains Melbourne

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We would be pleased to discuss any aspect of LocCool

Should you wish to see further documented evidence of the systems success to date then please do not hesitate to contact us