

SPECIFICATIONS OF PCM HEAT EXCHANGER

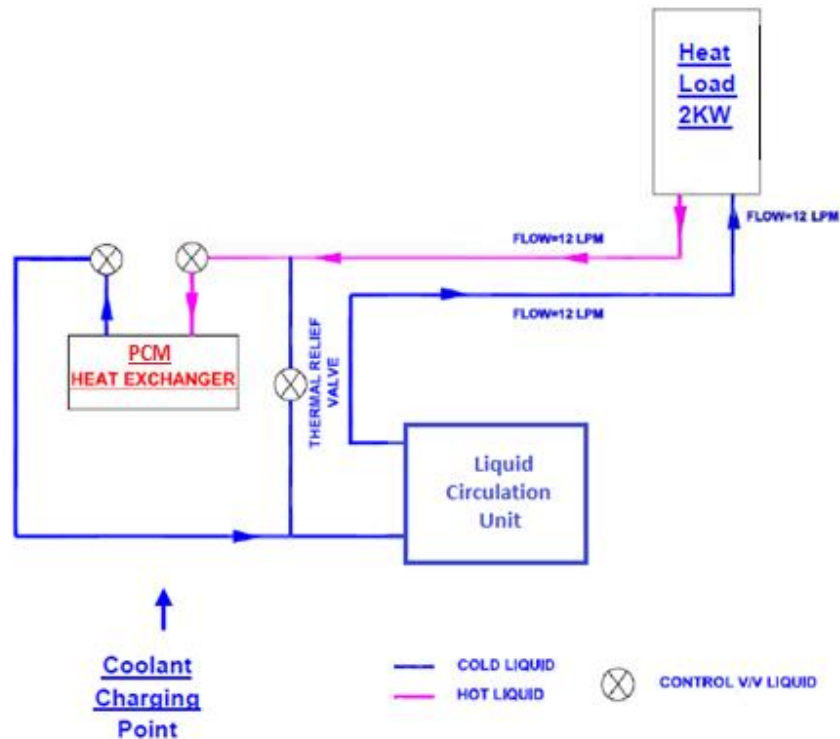


Fig 1: PCM Heat exchanger operation Schematic

Working

The Liquid Circulation Unit (LCU) circulates the coolant, Ethylene Glycol and Water Mixture (65:35) through the heat load at 12 lpm flow rate. Hot coolant is sent to PCM heat exchanger, which contains Phase change material, for dissipating the heat absorbed from the heat load.

Phase Change Material (PCM) Requirements

- a. Type of Phase change material to be used in BHE can be selected by Vendor.
- b. The PCM material should be of airborne standard.

Property or Characteristic	Requirement
Type	Solid - Liquid
Latent Heat (kJ/kg)	> 280 KJ/Kg
Corrosivity	Non-Corrosive
Thermal cycles	> 1000
Density Variation	Low
Thermal Conductivity	High

Specifications of PCM HX

Sl. no.	Description	Specification
1	Heat Load	2000 W
2	Coolant used	Ethylene Glycol & Water Mixture (65:35)
3	Coolant Volume Flow rate	12 LPM
4	Coolant operating temp at heat load inlet in PCM Heat Exchanger mode	< 50 °C
5	Coolant operating temperature range	-40 °C to +85 °C
6	Storage Temperature	-55 °C to +85 °C
8	Operating Pressure	5 Bar
9	Coolant capacity in circuit	2.5 Litres
10	Mechanical Dimensions (LxWxH, Ref Fig 2)	750mmX75mmX65mm
11	Operation time to be achieved with PCM heat exchanger	> 5 Minutes
13	Weight of the Unit (Including PCM)	<6 Kgs

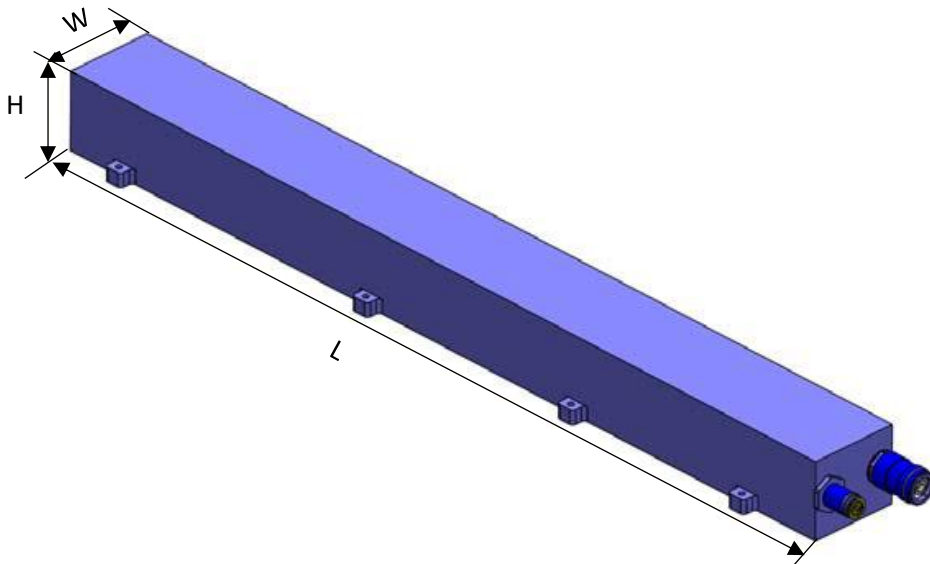


Fig 2: PCM HX CONCEPT