

Compact two-phase heat exchanger

Thermal management of sensitive components is crucial for the industry in particular regarding embedded system applications. The main challenges concern: power to be dissipated more and more significant, heat transfer surface reduced and harsher thermal environment conditions.

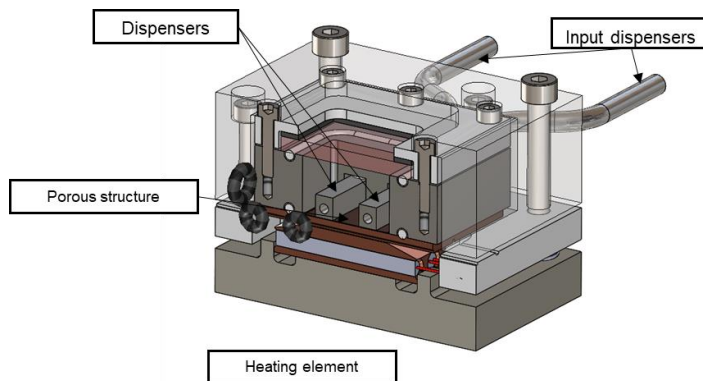
Our technology consists of a highly efficient, compact and easy to use heat exchanger.

DESCRIPTION*

This technology consists of a liquid-vapor two-phase heat exchanger highly efficient, compact and integrable into a cooling system

Main technical specifications:

- The evaporator is composed of a distributor connected to a porous structure in contact with the surface to be cooled
- The porous structure combined with evaporation allows both the capillary pumping and the heat extraction with a low wall superheat
- The device can be integrated in any type of two-phase passive or active heat transfer device like Capillary Pumped Loops (CPLs), Loop Heat Pipes (LHPs), thermosiphon or Mechanically Pumped Loop



TECHNICAL SPECIFICATIONS

Size	Thickness ranging from 0,5 to 1 cm
Heat transfer coefficient	≈10-50 kW/m2/K
Pressure drop	~ 1mbar
Cooling type	Any kind of highly wetting liquid
Capillary structure type	Ordered / Random porous structure, fiber layer (silicon, copper, other substrate material)

* Technology requiring license rights.

COMPETITIVE ADVANTAGES

- Intensification of heat transfer with low pressure drop
- Auto-adaptive system
- Compactness
- Easy to integrate
- Reliability and robustness

APPLICATIONS

- Embedded electronic devices and power modules (Ex. IGBT)
- Data processing (data centers – PC fanless...)
- Energy and energy storage devices (Ex. battery, Fuel Cell...)
- Microreactor, Micromixer...

INTELLECTUAL PROPERTY

- Patent pending

DEVELOPMENT STAGE

- Experimental proof of concept



LABORATORY



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