Cooling House

Heat pipes

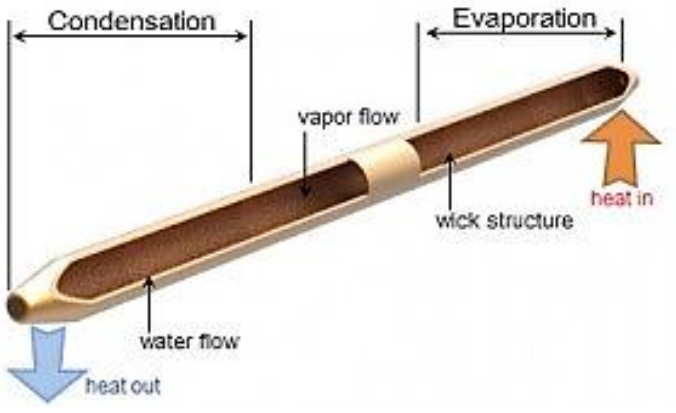
Ver.2

About heat pipe

Heat pipe is a heat transfer device that combines the principles of both thermal conductivity and phase transition to efficiently manage the transfer of heat between two solid interfaces. At the evaporation area, working fluid turns into vapor by absorbing heat from the source, then by the effect of pressure difference the vapor travels along the pipe to other end in contact with cold surface or fins, and condense back to the liquid after heat exchanging. After the condensation, the liquid flows back to the evaporation area by papillary and gravity force, thus as one cycle.
Due to the very high heat transfer efficiency of phase changing mechanism at both evaporation and condensation ends, heat pipes (also vapor chamber or loop thermosyphon) can transfer much more heat than any other solid materials, the equivalent thermal conductivity of heat pipe can be 8,000~15,000 W/m-K, which is 40~80 times of Aluminum.

Methanol heat pipe

Among low temperature environment, when the ambient temperature of the system is below zero degrees Celsius, traditional heat pipes with water as the working fluid may be frozen out and not be able to operate normally, resulting in system performance varies. Methanol low temperature heat pipe is the solution for this scenario. The special designed heat pipe utilizes the physical properties of methanol and is capable to operate in the ambient temperature of -20 to 80 ° C. Even though the performance of heat transfer capability is worse than that of traditional water copper heat pipes (see HEAT PIPE MERIT TABLE), it keeps operating in the critical low temperature environment and ensure customers system runs correctly.

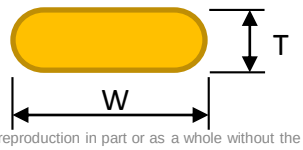


Suggested minimum heat pipe bending radius

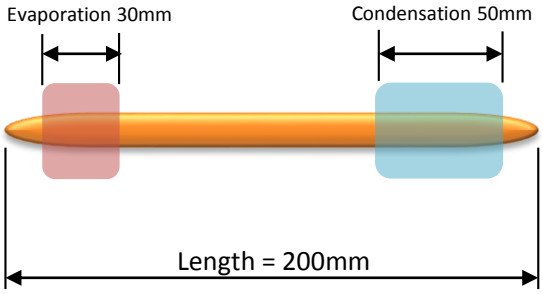
D, 熱導管外徑 Heat pipe diameter (mm)	R, 建議最小折彎半徑 Suggested minimum bending radius (mm)
3	7.5
4	10
5	12.5
6	15
8	20
10	25

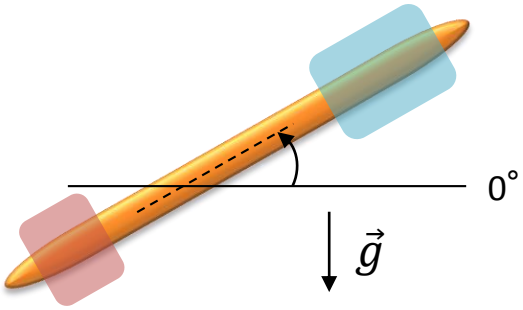
Flattened heat pipe dimension

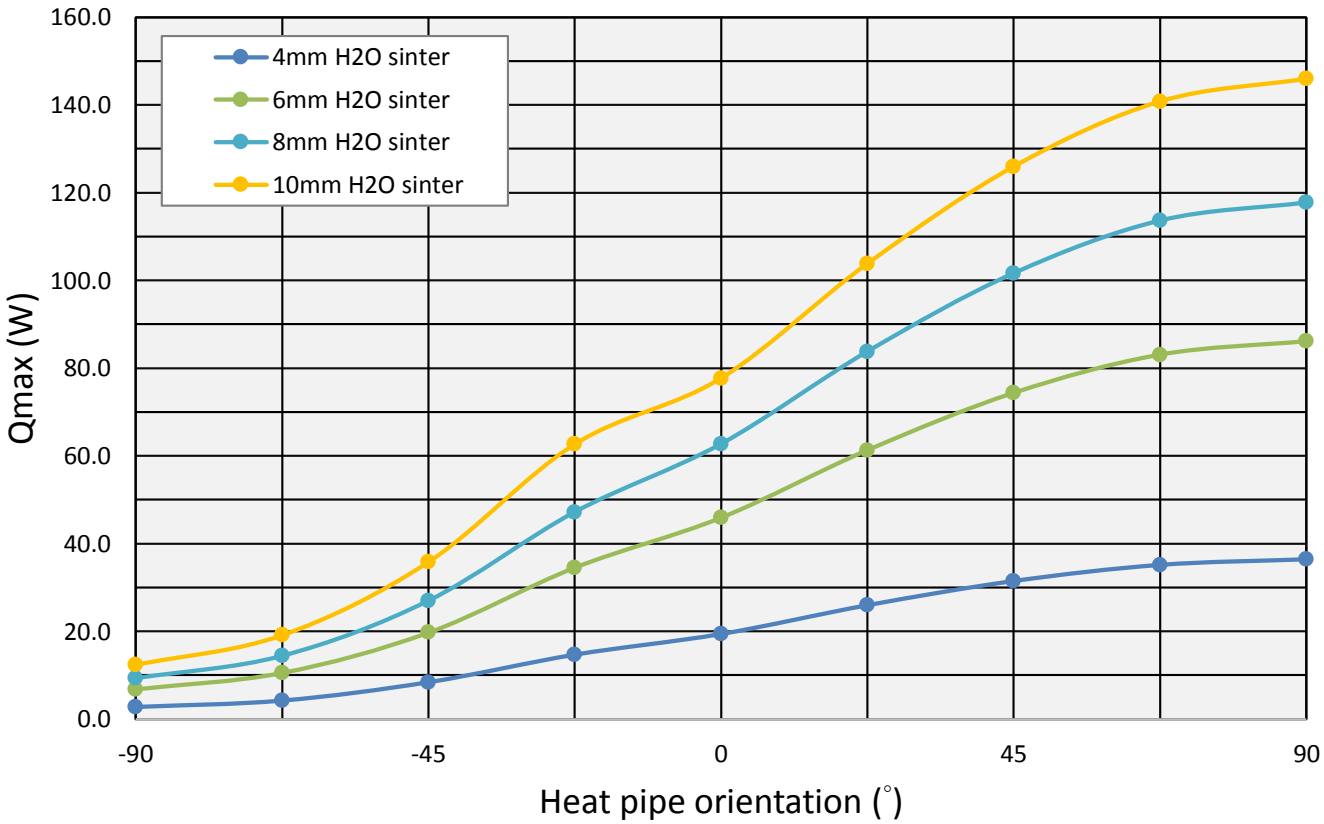
D, 熱導管外徑 Heat pipe diameter (mm)	T, 熱管壓扁厚度 Flatten thickness, +/- 0.08 (mm)	W, 寬度 Width, +/-0.12 (mm)
2	1.5	2.4
3	2.5	3.4
	2.0	3.7
	1.8	3.8
	1.2	4.1
4	2.5	5.0
	2.0	5.3
	1.8	5.6
	1.2	5.7
5	3.0	6.3
	2.5	6.6
	2.0	6.9
	1.5	7.2
6	4.0	7.3
	3.5	7.7
	3.0	8.0
	2.0	8.5
8	5.0	10.0
	4.0	10.6
	3.0	11.1
	2.0	11.9
10	9.0	10.8
	7.0	12.1
	5.0	13.2
	3.0	14.2



Reference heat pipe Qmax V.S. Orientation







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