

FLAT HEAT PIPE / MHP-2040A100A

General Specification

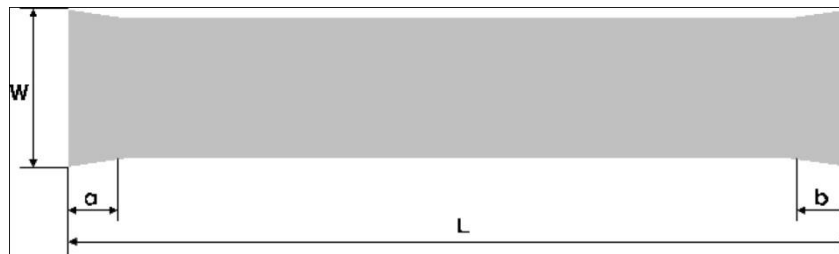
Item		Description
Part Number		MHP-2040A100A
Material of Container		Aluminium 1070
Wick Structure		Groove
Working Fluid		Acetone
Dimension	Thickness	2.0 mm
	Width	40.0 mm
	Length	100 mm
Weight		12 g (Unit Weight)
Q _{max}	Horizontal	45.0 W (at 50°C)
	Vertical	175.0 W (at 50°C)
Typical Thermal Resistance		<0.3°C / W (Average)
Operating Inclination, ϕ		0 ~ 90°
Leak Temperature Criterion		-40~100°C

Scope

This specification details the requirements and applications for 2.0mm x 40.0mm x 100.0mm.

Dimensions

The dimensional attributes of this shall conform to the following figure.



Thickness (t)	Width (W)	Length (L)	Ineffective Length (a)	Ineffective Length (b)
2.0 mm	40.0 mm	100.0 mm	2.5 mm	2.5 mm

Material

Container	Aluminium 1070
Working Fluid	Acetone
Surface Treatment	None

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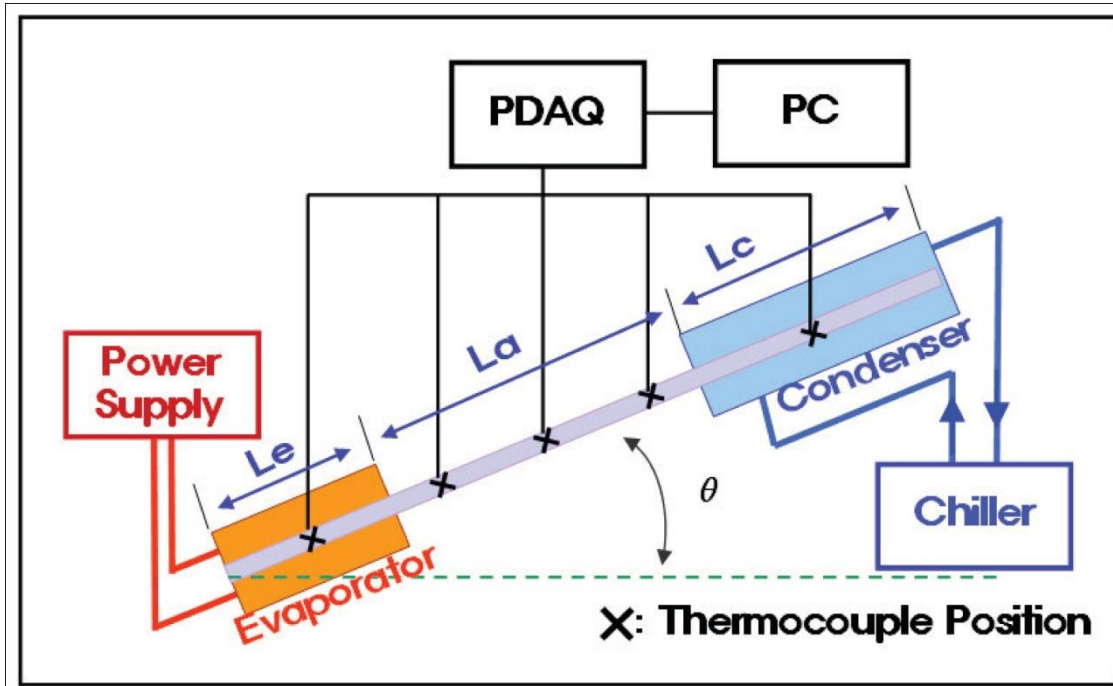
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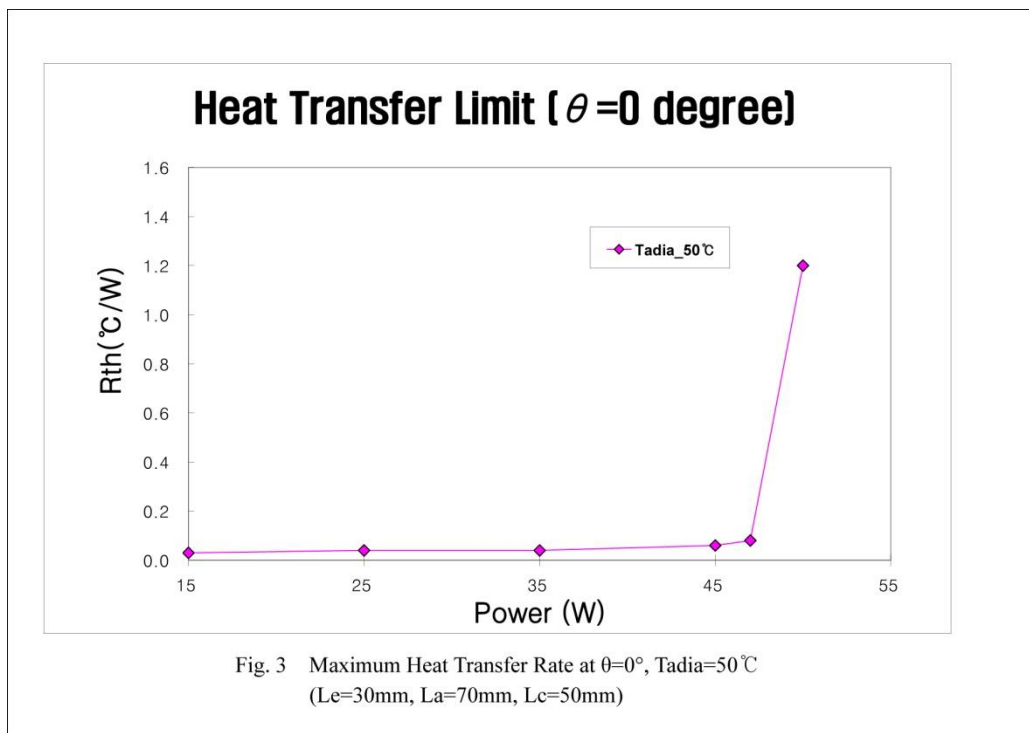
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Qmax Test Apparatus



AMEC Thermasol

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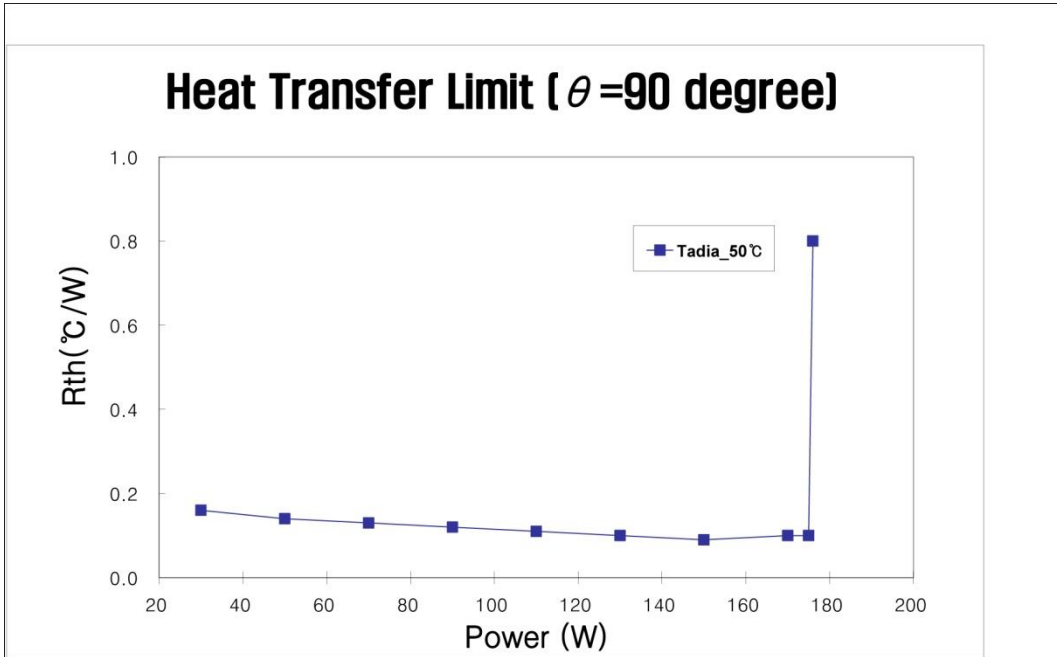


Fig. 4 Maximum Heat Transfer Rate at $\theta=90^\circ$, Tadia=50 °C
 (Le=30mm, La=70mm, Lc=50mm)

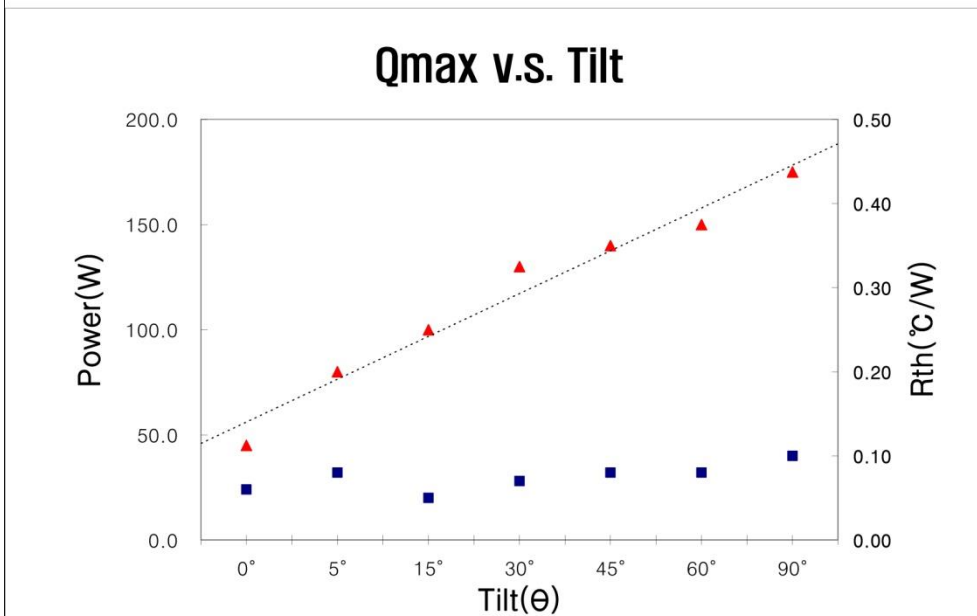


Fig. 5 Maximum Heat Transfer Rate vs. Inclination at Tadia=50 °C
 (Le=30mm, La=70mm, Lc=50mm)

High Temperature Leak Test

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Every manufactured component is sealed with a mechanical pinch system. The mechanical pinch of container results in a cold weld seal. The average leak temperature is about 170°C.

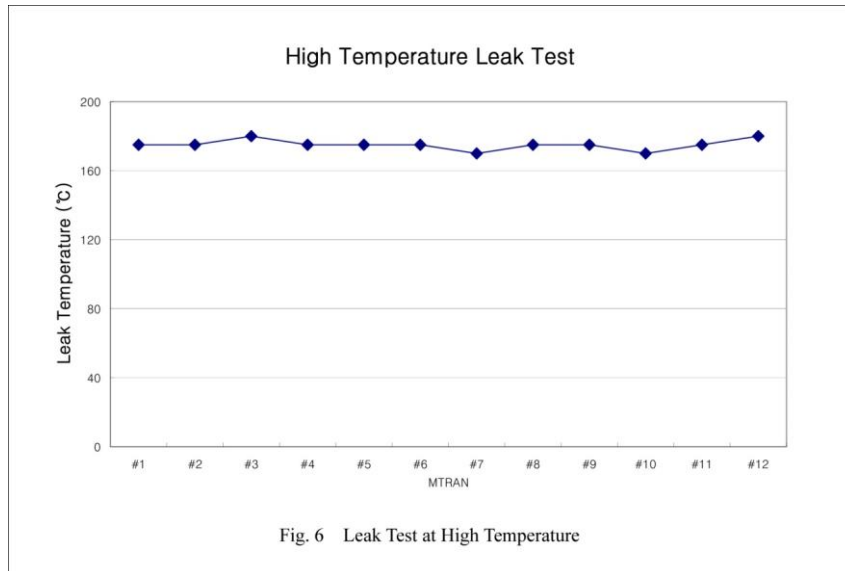


Fig. 6 Leak Test at High Temperature

Thermal Response Test

Every manufactured unit must pass the thermal response test to ensure its operation and Vacuum and leakage check. The experimental test bench is schematically shown in Fig.6. Water bath temperature, (T_w) is set at 50°C and the temperature of other end, T_t is measured immediately after it is placed vertically into the water bath. The criterion for acceptance is 5°C ($T_w - T_t$).

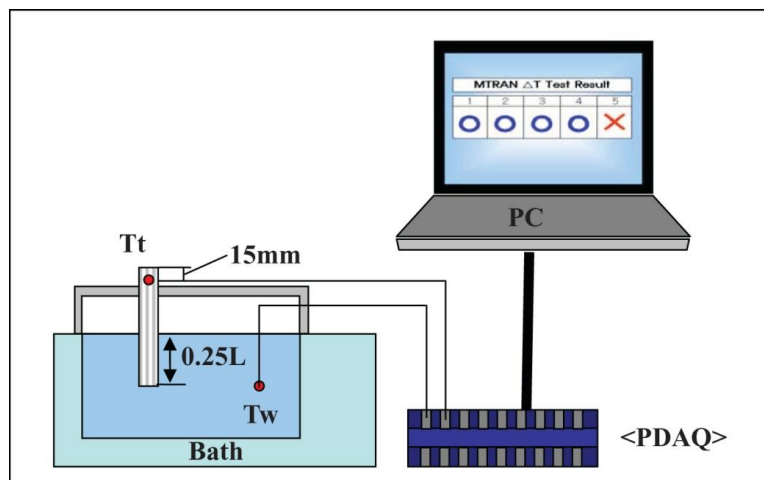


Fig. 7 Thermal Response Test Apparatus

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