

FLAT HEAT PIPE / MHP-2040A300A

General Specification

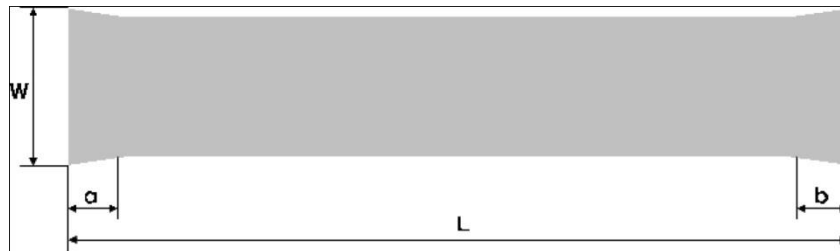
Item	Description	
Part Number	MHP-2040A300A	
Material of Container	Aluminium 1070	
Wick Structure	Groove	
Working Fluid	Acetone	
Dimension	Thickness	2.0 mm
	Width	40.0 mm
	Length	300 mm
Weight	36 g (Unit Weight)	
Q _{max}	Horizontal	45.0 W (at 50°C)
	Vertical	175.0 W (at 50°C)
Typical Thermal Resistance	<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 300.0mm.

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	300.0 mm	2.5 mm	2.5 mm

Material

Container	Aluminium 1070
Working Fluid	Acetone
Surface Treatment	None

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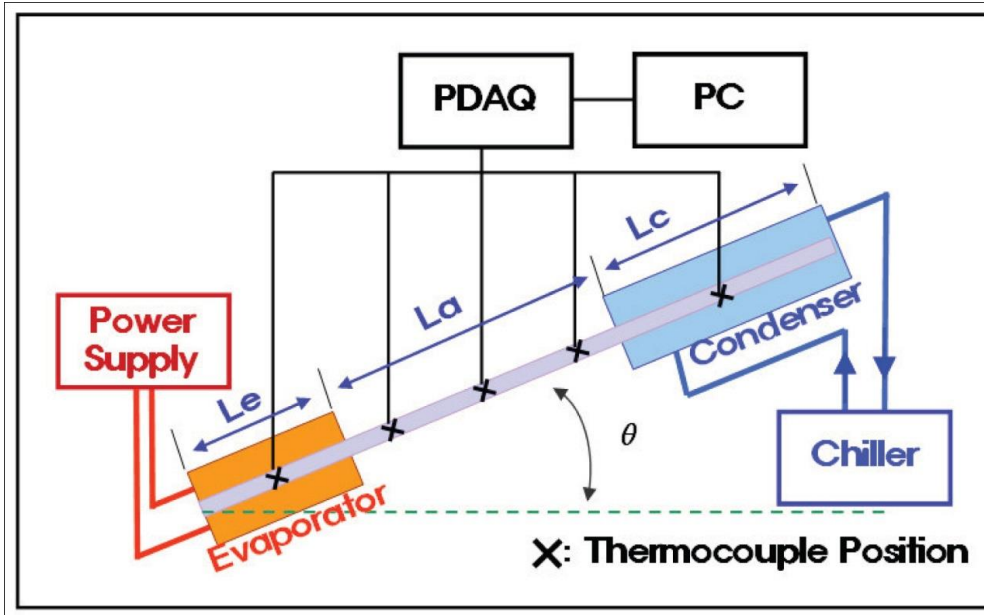
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Test Data – MHP-2040A150A



Qmax Test Apparatus

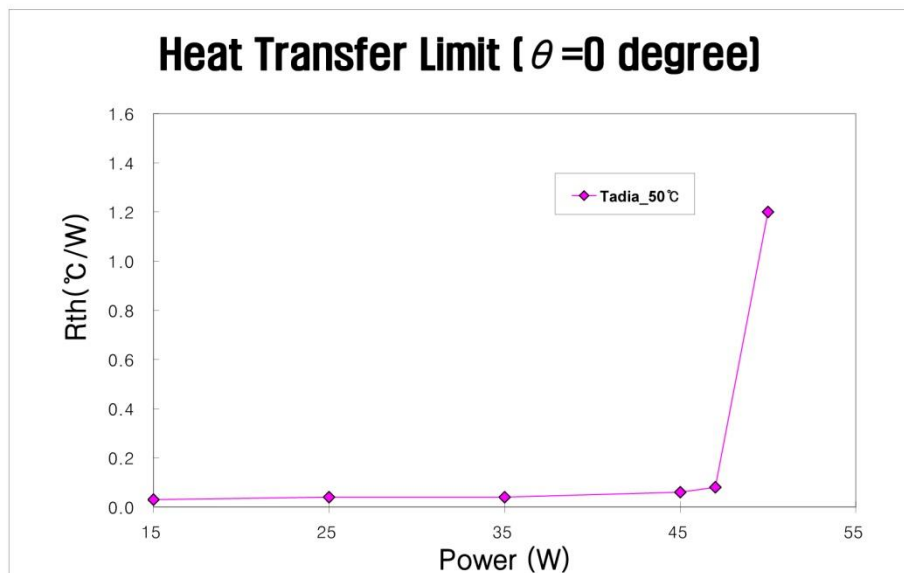


Fig. 3 Maximum Heat Transfer Rate at $\theta = 0^\circ$, $T_{adia} = 50^\circ\text{C}$
 ($L_e = 30\text{mm}$, $L_a = 70\text{mm}$, $L_c = 50\text{mm}$)

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Test Data – MHP-2040A150A

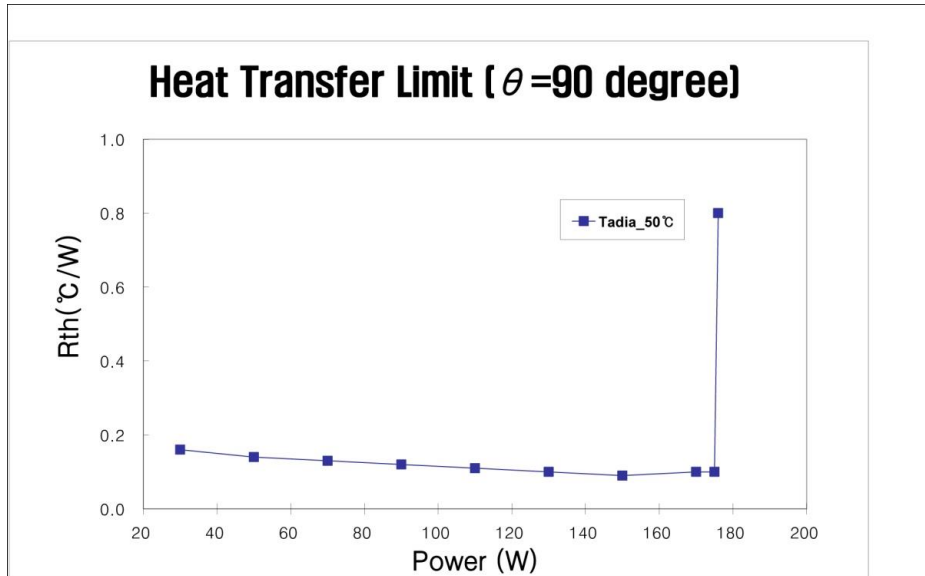


Fig. 4 Maximum Heat Transfer Rate at $\theta=90^\circ$, Tadia=50°C
(Le=30mm, La=70mm, Lc=50mm)

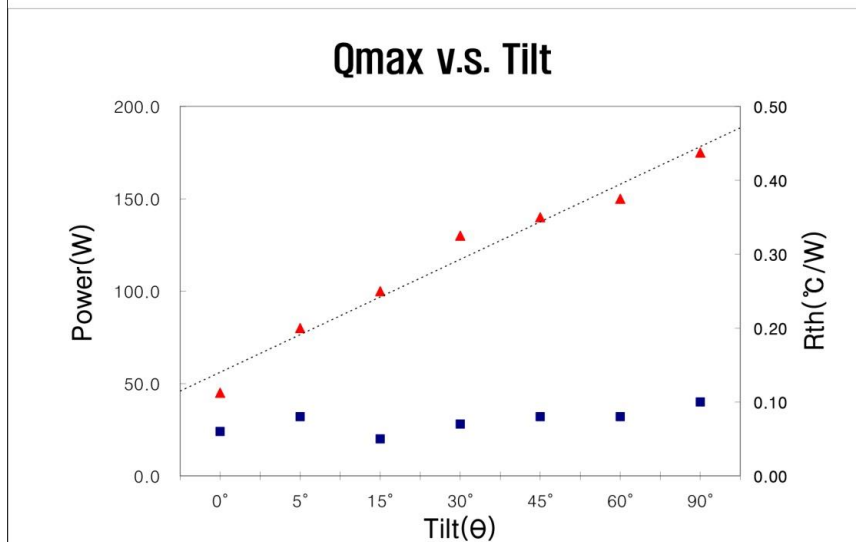


Fig. 5 Maximum Heat Transfer Rate vs. Inclination at Tadia=50°C
(Le=30mm, La=70mm, Lc=50mm)

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High Temperature Leak Test

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.

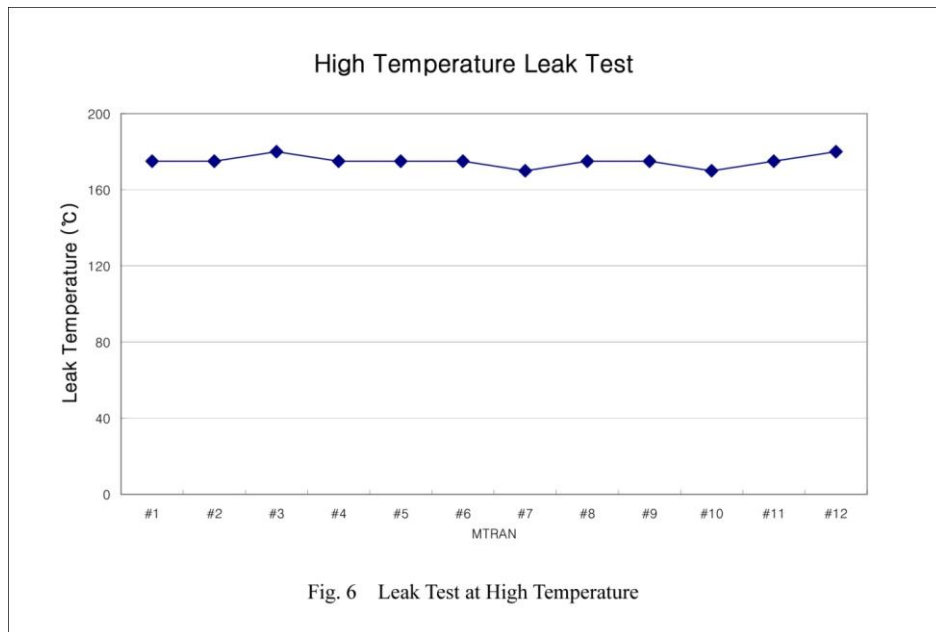


Fig. 6 Leak Test at High Temperature

Thermal Response Test

A thermal response test and vacuum leakage check are carried out to ensure its operation. 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 ($T_w - T_t$).

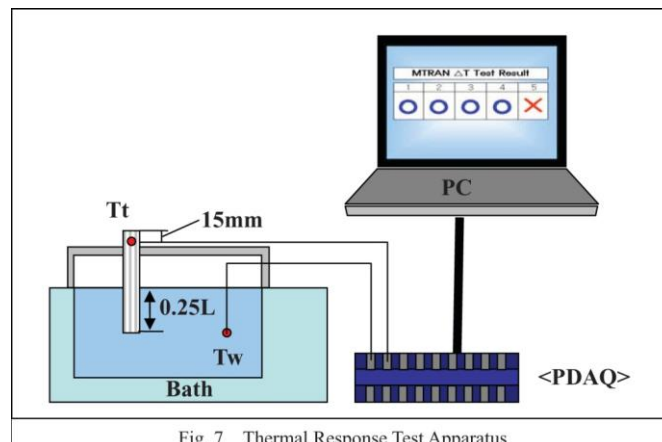


Fig. 7 Thermal Response Test Apparatus

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