

FLAT HEAT PIPE / MHP-1630A200A

General Specification

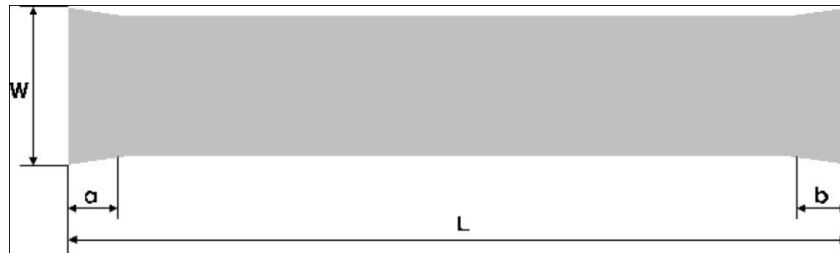
Item		Description
Part Number		MHP-1630A200A
Material of Container		Aluminium 1070
Wick Structure		Groove
Working Fluid		Acetone
Dimension	Thickness	1.6 mm
	Width	30.0 mm
	Length	200 mm
Weight		16 g (Unit Weight)
Qmax	Horizontal	14.5 W (at 50°C)
	Vertical	75.0 W (at 50°C)
Typical Thermal Resistance		<0.25°C / W (Average)
Operating Inclination, ϕ		0 ~ 90°
Operating Temperature		-40 ~ 100°C

Scope

This specification details the requirements and applications for 1.6mm x 30.0mm x 200.0mm.

Dimensions

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



Thickness (t)	Width (W)	Length (L)	Ineffective Length (a)	Ineffective Length (b)
1.6 mm	30.0 mm	200.0 mm	3.0 mm	3.0 mm

Material

Container	Aluminium 1070
Working Fluid	Acetone
Surface Treatment	None

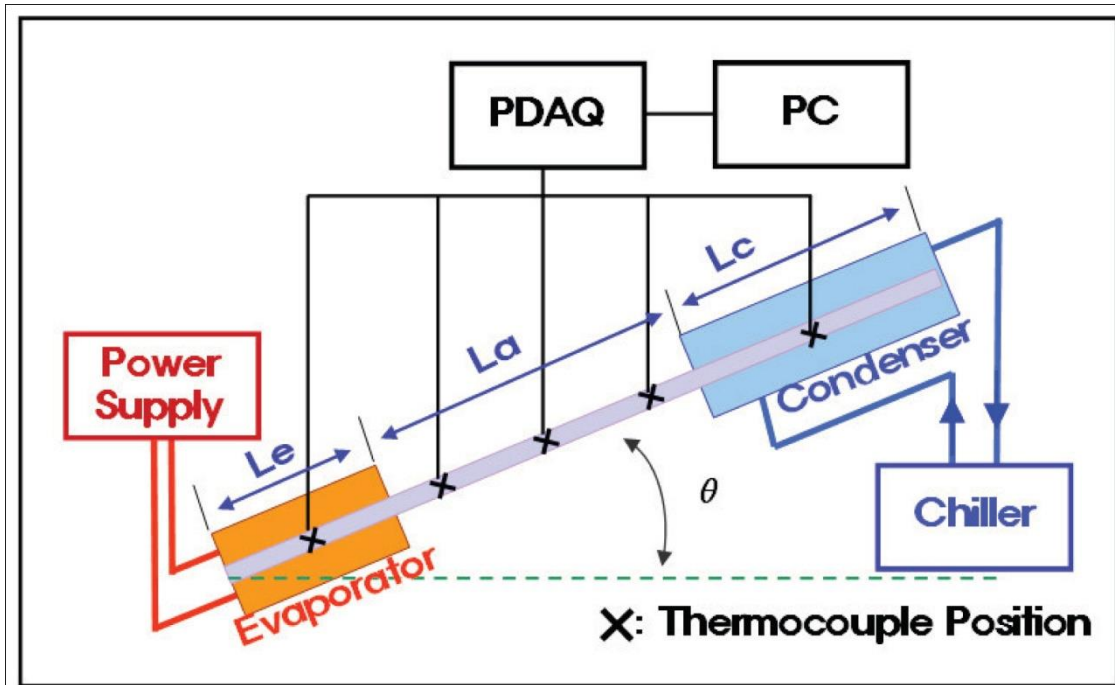
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Qmax Test Apparatus

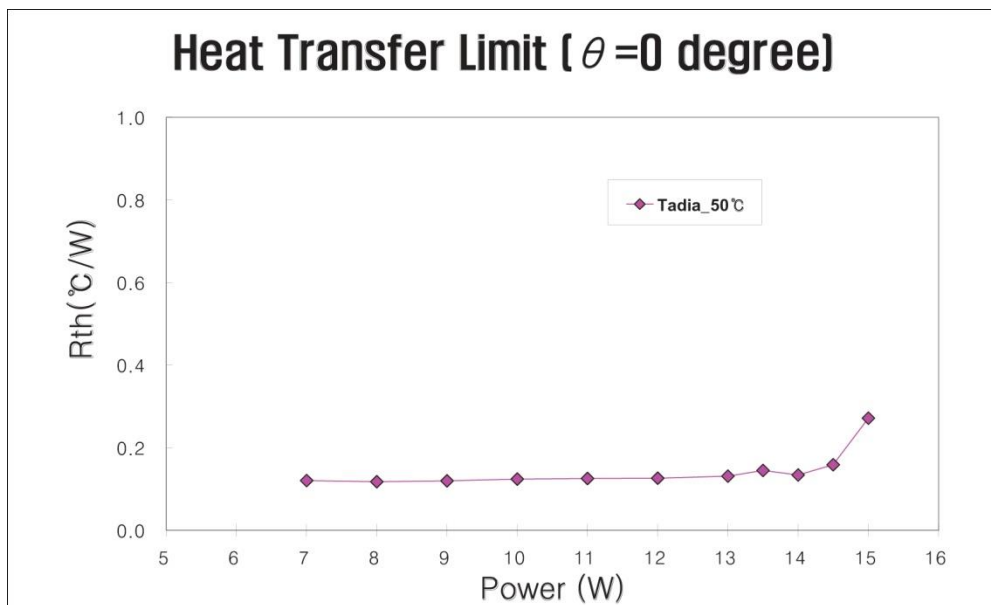


Fig. 3 Maximum Heat Transfer Rate at $\theta=0^\circ$, $T_{adia}=50^\circ\text{C}$
 ($L_e=30\text{mm}$, $L_a=74\text{mm}$, $L_c=90\text{mm}$)

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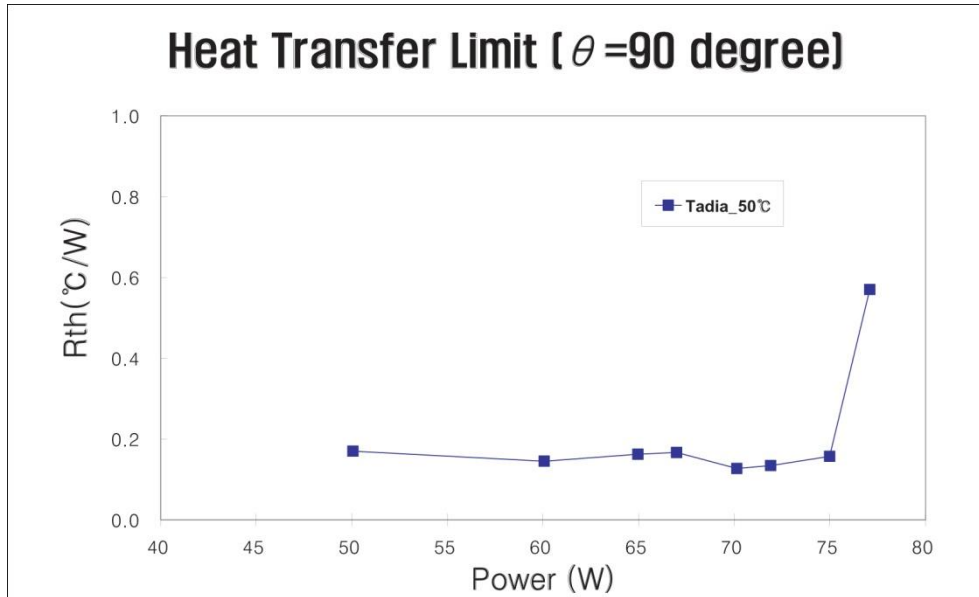


Fig. 4 Maximum Heat Transfer Rate at $\theta=90^\circ$, Tadia=50°C
(Le=30mm, La=74mm, Lc=90mm)

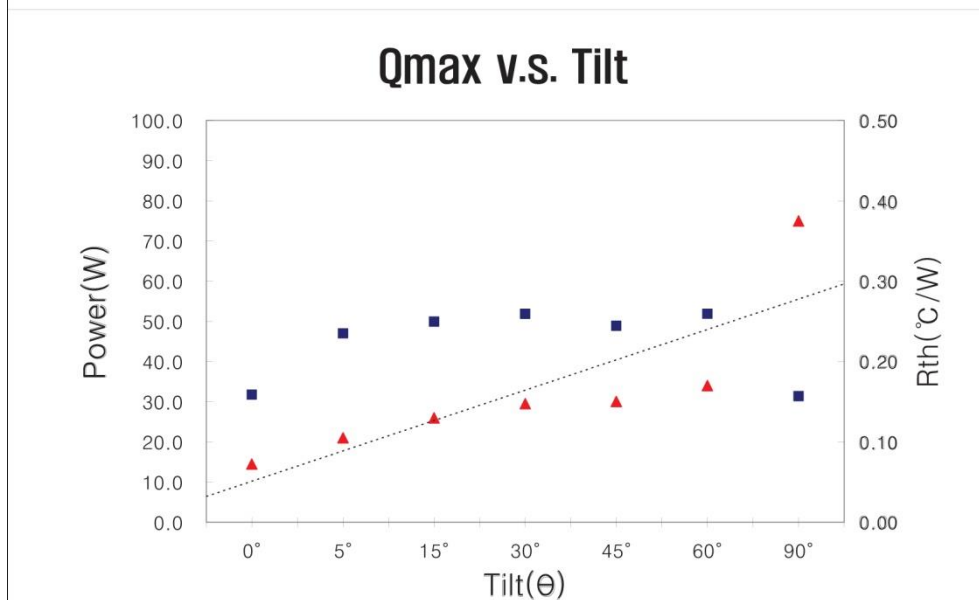


Fig. 5 Maximum Heat Transfer Rate vs. Inclination at Tadia=50°C
(Le=30mm, La=74mm, Lc=90mm)

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Operating Range

	Operating	Storage
Temperature	-40 ~ 100°C	-10 ~ 40°C
Humidity	80 % RH Max (at 60°C)	80 % RH Max (at 60°C)
Tilt Angle	0 ~ 90 degree	Horizontal

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.

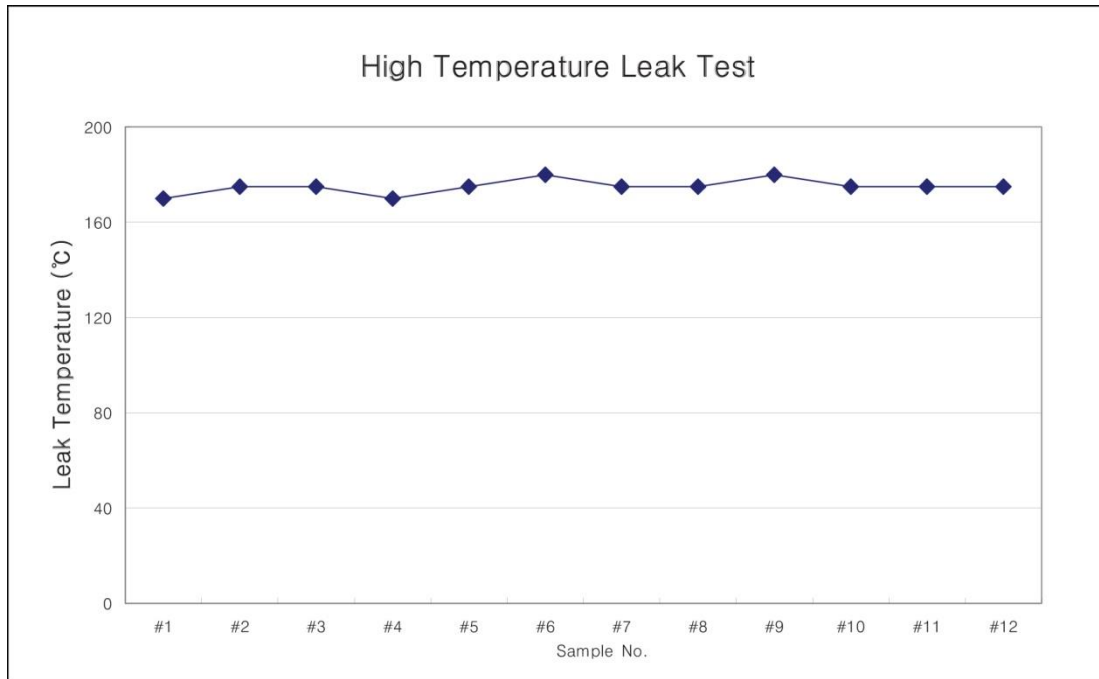


Fig. 6 Leak Test at High Temperature

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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 ($T_w - T_t$).

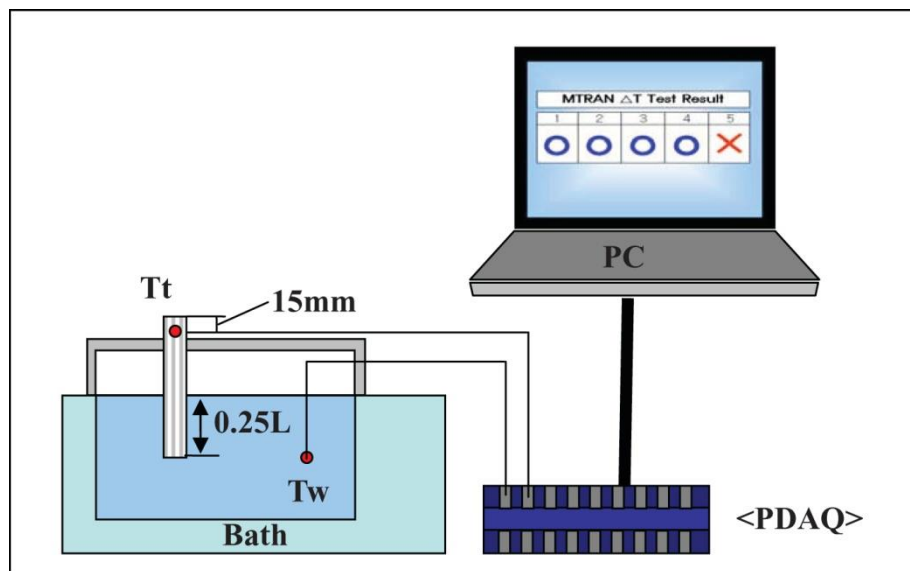


Fig. 7 Thermal Response Test Apparatus

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