

FLAT HEAT PIPE / MHP-2040A250A

General Specification

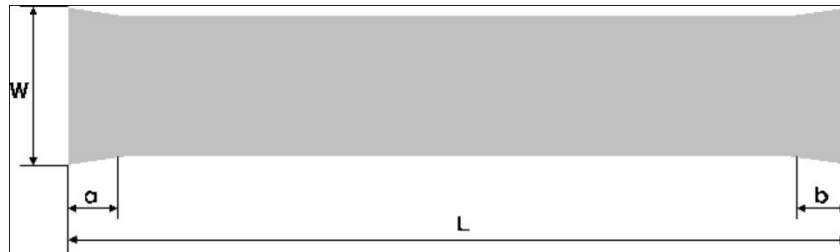
Item		Description
Part Number		MHP-2040A250A
Material of Container		Aluminium 1070
Wick Structure		Groove
Working Fluid		Acetone
Dimension	Thickness	2.0 mm
	Width	40.0 mm
	Length	250 mm
Weight		30 g (Unit Weight)
Qmax	Horizontal	45.0 W (at 50°C)
	Vertical	175.0 W (at 50°C)
Typical Thermal Resistance		<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 250.0mm.

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	250.0 mm	2.5 mm	2.5 mm

Material

Container	Aluminium 1070
Working Fluid	Acetone
Surface Treatment	None

Test Data – MHP-2040A150A

AMEC Thermasol

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Test Data – MHP-2040A150A

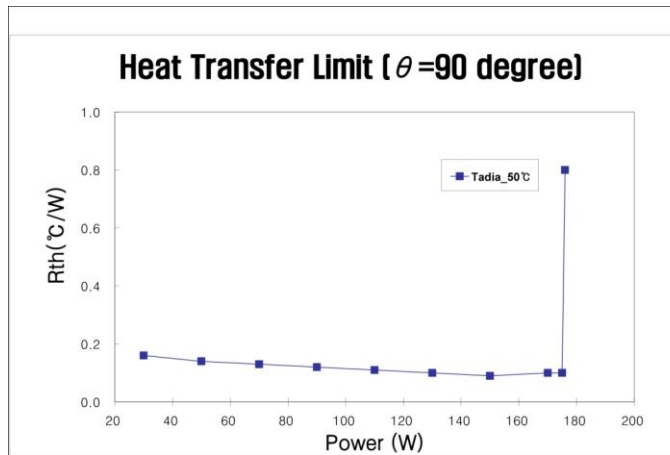
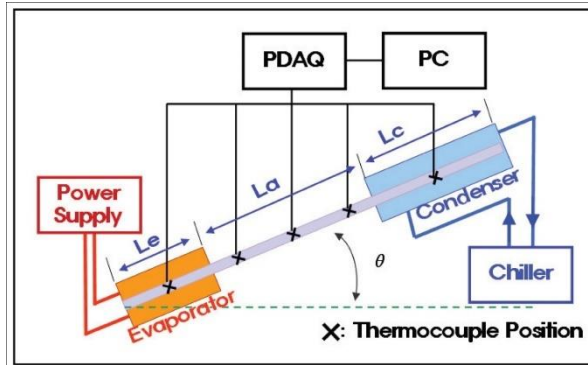


Fig. 4 Maximum Heat Transfer Rate at $\theta = 90^\circ$, Tadia = 50°C
(Le = 30mm, La = 70mm, Lc = 50mm)

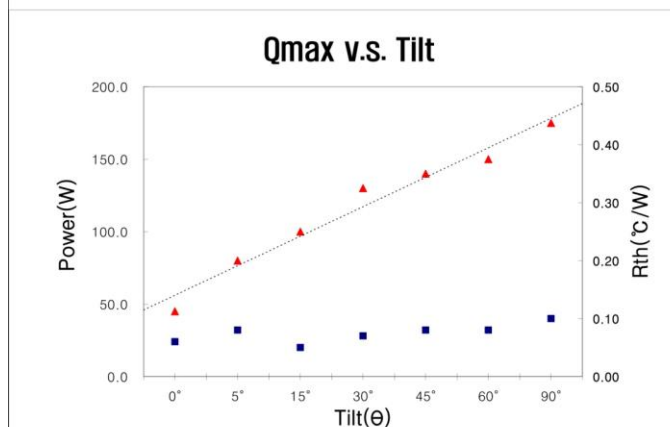


Fig. 5 Maximum Heat Transfer Rate vs. Inclination at Tadia = 50°C
(Le = 30mm, La = 70mm, Lc = 50mm)

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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.

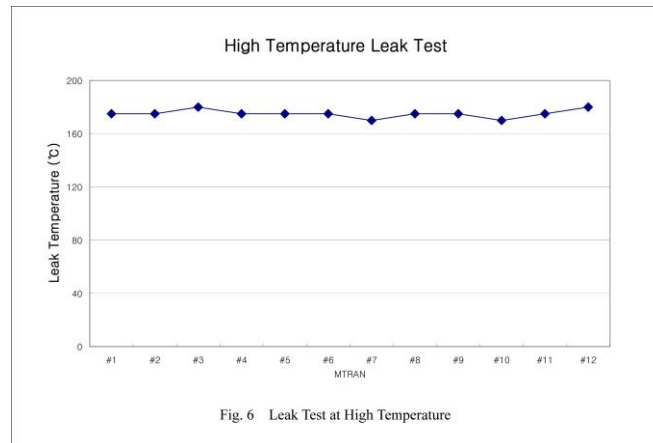


Fig. 6 Leak Test at High Temperature

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 ($T_w - T_t$).

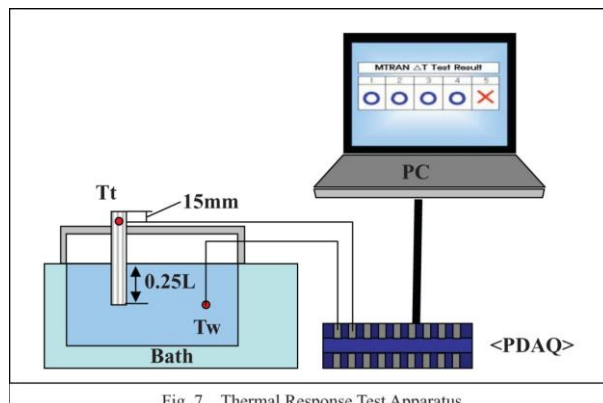


Fig. 7 Thermal Response Test Apparatus

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