

FLAT HEAT PIPE / MHP-1220A150A

General Specification

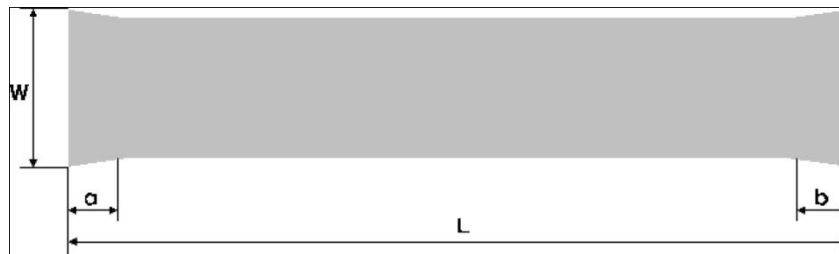
Item		Description
Part Number		MHP-1220A150A
Material of Container		Aluminium 1070
Wick Structure		Groove
Working Fluid		Acetone
Dimension	Thickness	1.2 mm
	Width	20.0 mm
	Length	150.0 mm
Weight		6 g (Unit Weight)
Qmax	Horizontal	5 W (at 50°C)
	Vertical	18 W (at 50°C)
Typical Thermal Resistance		<0.4°C / W (Average)
Operating Inclination, ϕ		0 ~ 90°
Operating Temperature		-40 ~ 100°C

Scope

This specification details the requirements and applications for 1.2mm x 20.0mm x 150.0mm.

Dimensions

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



Thickness (t)	Width (W)	Length (L)	Ineffective Length (a)	Ineffective Length (b)
1.2 mm	20.0 mm	150.0 mm	1.5 mm	1.5 mm

[Material]

Container	Aluminium 1070
Working Fluid	Acetone
Surface Treatment	None

Performance

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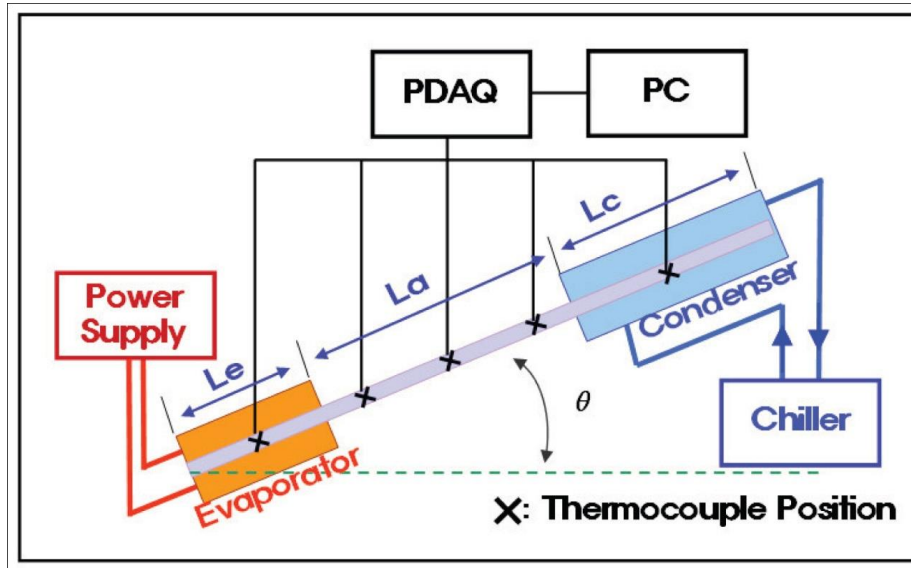
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Telephone: +44(0) 1493 668622

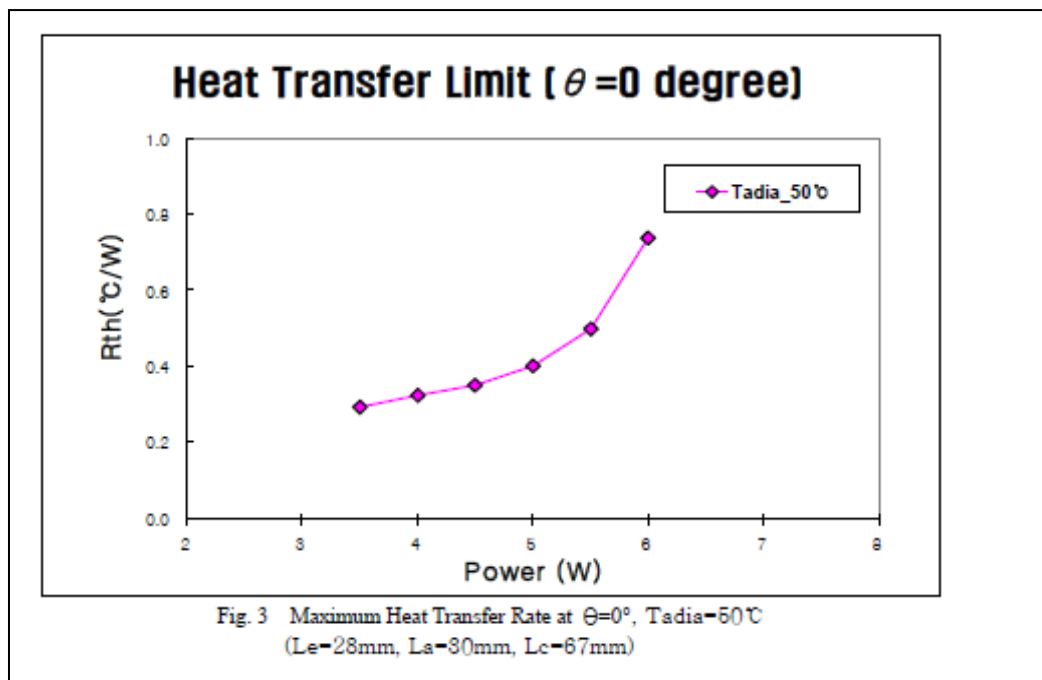
Email: sales@amecthermasol.co.uk Website: www.amecthermasol.co.uk

FLAT HEAT PIPE / MHP-1220A150A

The experimental test bench is composed of support that assumes the inclination of MHP. The MHP is electrically heated at a section of length (L_e), and cooled at an opposite section of a length (L_c). K type thermocouples are placed along the MHP to display the temperature variations. To obtain the operating temperature for a MHP, usually a length of L_a insulates a middle section of the tested MHP. Temperatures are measured through a data acquisition (YOKAGAQA DAQSTATION DX2000). Evaporator section has been made of heat block with cartridge heater. The condenser section has been made of water jacket in which cooling water circulates. A cooling bath is used to control the cooling fluid temperature.



Qmax Test Apparatus



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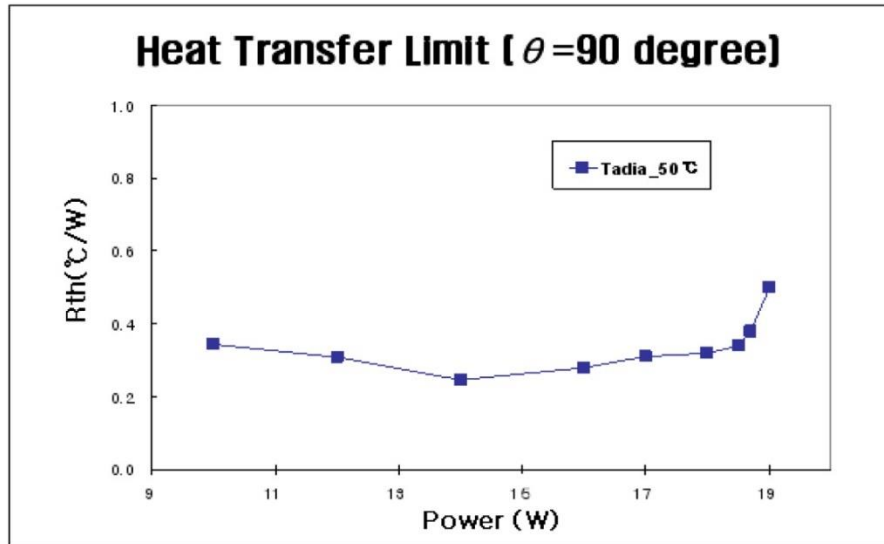
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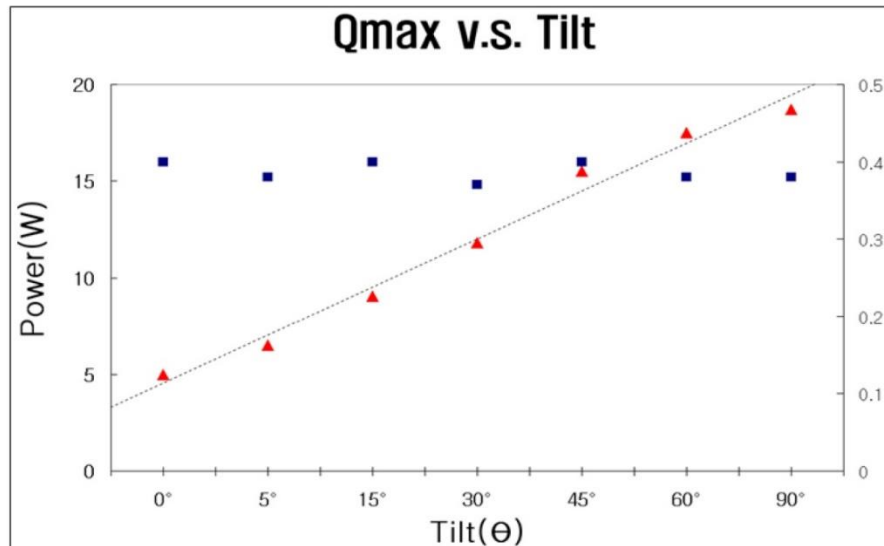
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FLAT HEAT PIPE / MHP-1220A150A

Test Data – MHP-1220A125A



Maximum Heat Transfer Rate at $\theta=90^\circ$, Tadia=50°C
(Le=28mm, La=30mm, Lc=67mm)



Maximum Heat Transfer Rate vs. Inclination at Tadia=50°C
(Le=28mm, La=30mm, Lc=67mm)

TEST DATA – MHP-1220A125A

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High Temperature Leak Test

Every manufactured MHP 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.

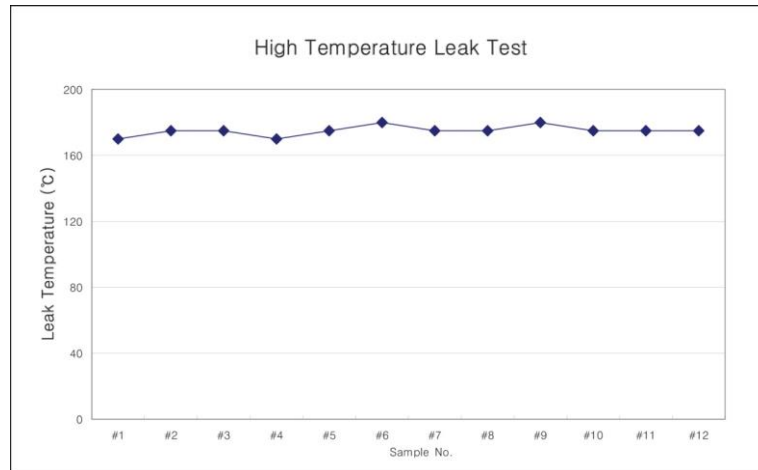


Fig. 6 Leak Test at High Temperature

TEST DATA – MHP-1220A125A

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 ($T_w - T_t$).

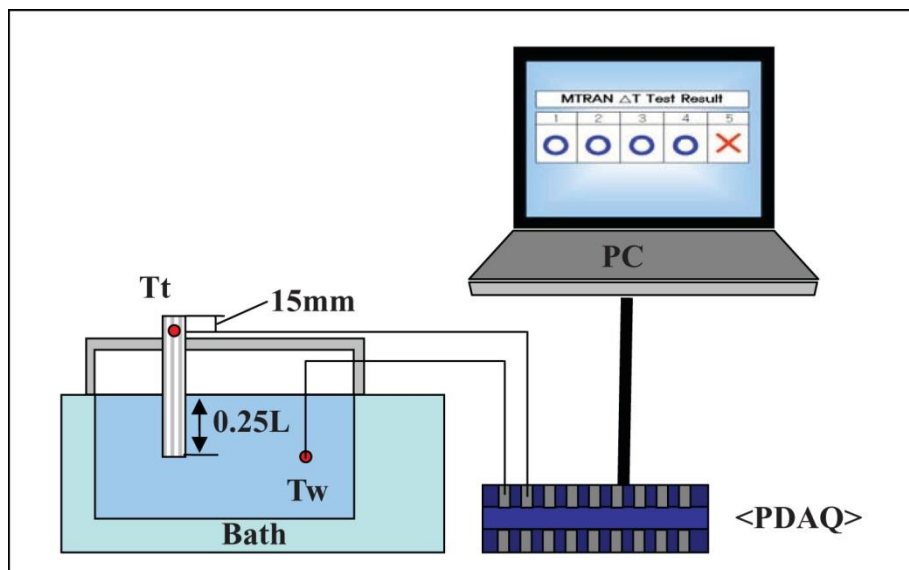


Fig. 7 Thermal Response Test Apparatus

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