

FLAT HEAT PIPE / MHP-1630A100A

General Specification

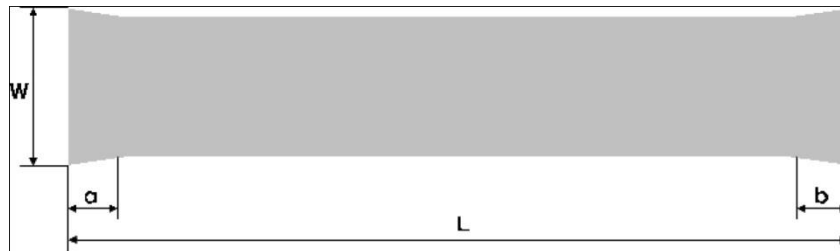
| Item | Description | |
|-------------------------------|-----------------------|------------------|
| Part Number | MHP-1630A100A | |
| Material of Container | Aluminium 1070 | |
| Wick Structure | Groove | |
| Working Fluid | Acetone | |
| Dimension | Thickness | 1.6 mm |
| | Width | 30.0 mm |
| | Length | 100 mm |
| Weight | 8 g (Unit Weight) | |
| Q _{max} | 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 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) |
|---------------|-----------|------------|------------------------|------------------------|
| 1.6 mm | 30.0 mm | 100.0 mm | 3.0 mm | 3.0 mm |

Material

| | |
|-------------------|----------------|
| Container | Aluminium 1070 |
| Working Fluid | Acetone |
| Surface Treatment | None |

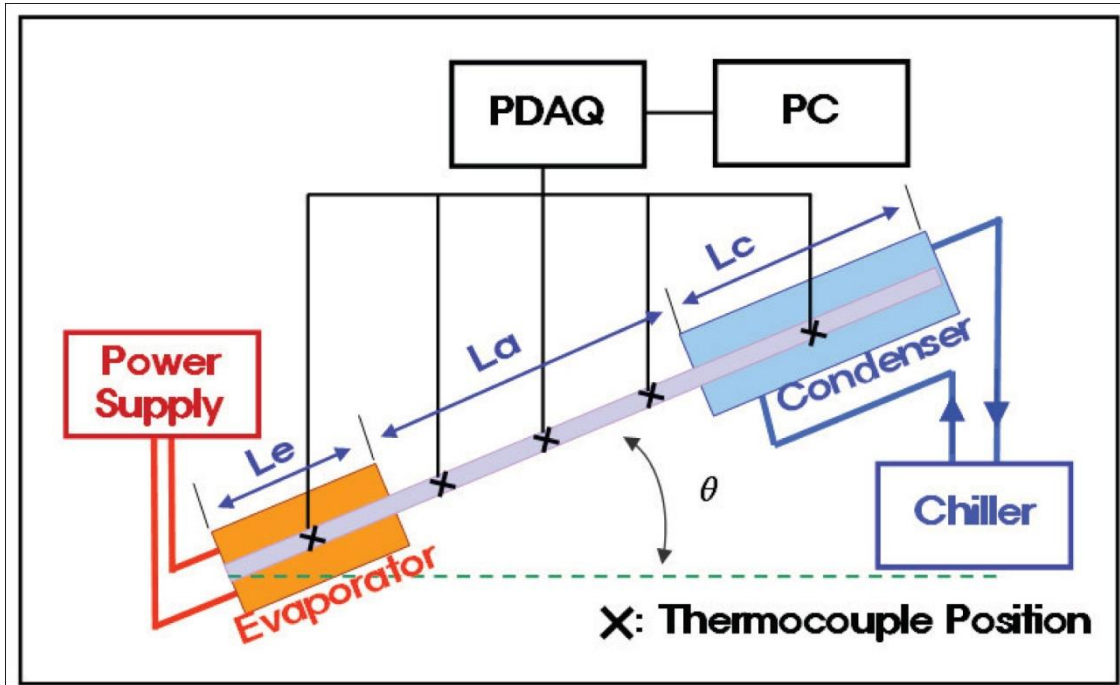
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Qmax Test Apparatus

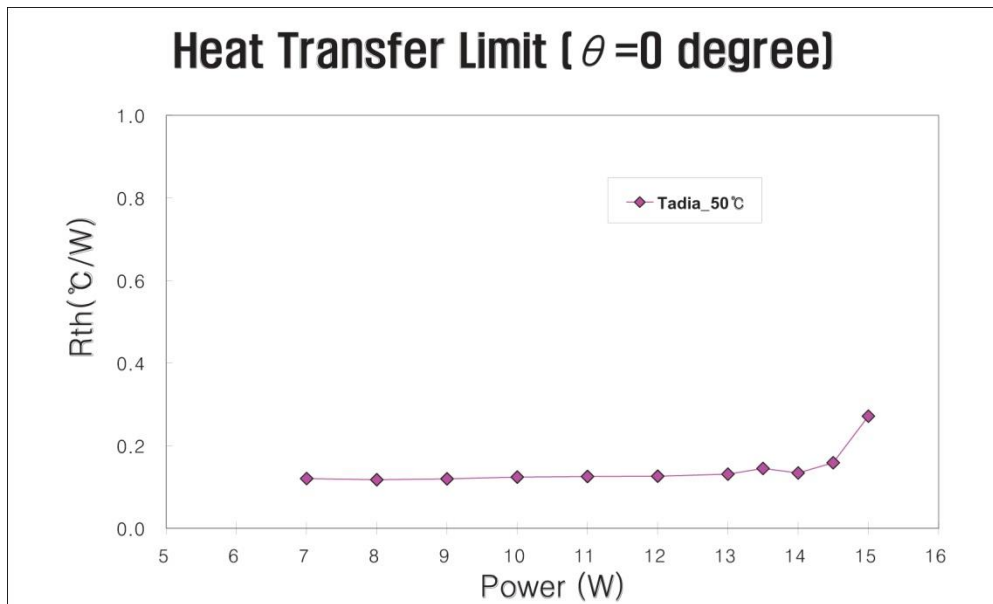


Fig. 3 Maximum Heat Transfer Rate at $\theta=0^\circ$, $T_{adia}=50^\circ\text{C}$
 ($L_e=30\text{mm}$, $L_a=74\text{mm}$, $L_c=90\text{mm}$)

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Test Data – MHP-1630A200A

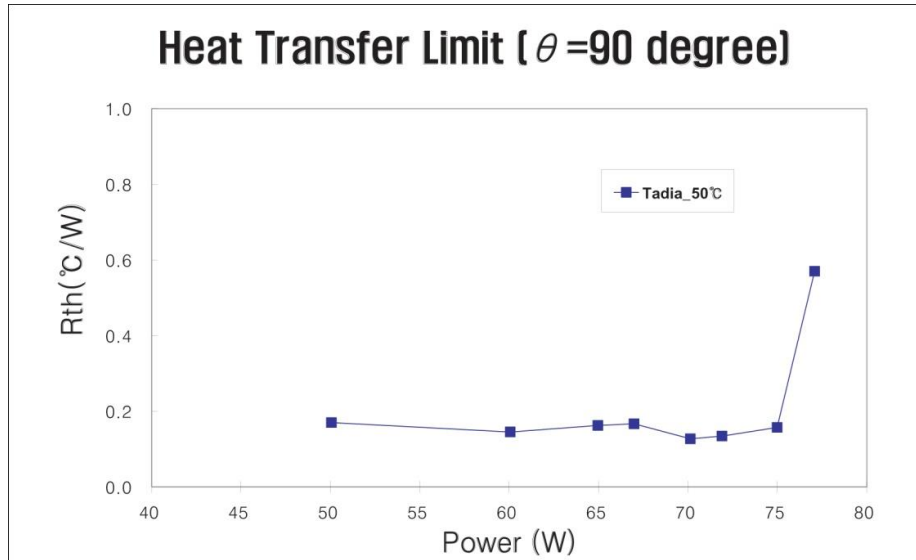


Fig. 4 Maximum Heat Transfer Rate at $\theta=90^\circ$, Tadia=50°C
(Le=30mm, La=74mm, Lc=90mm)

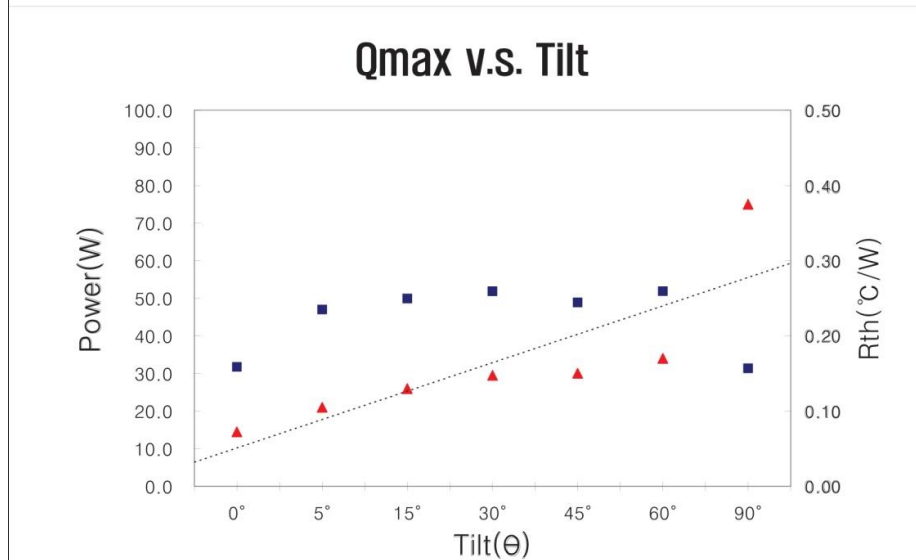


Fig. 5 Maximum Heat Transfer Rate vs. Inclination at Tadia=50°C
(Le=30mm, La=74mm, Lc=90mm)

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Test Data – MHP-1630A200A

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.

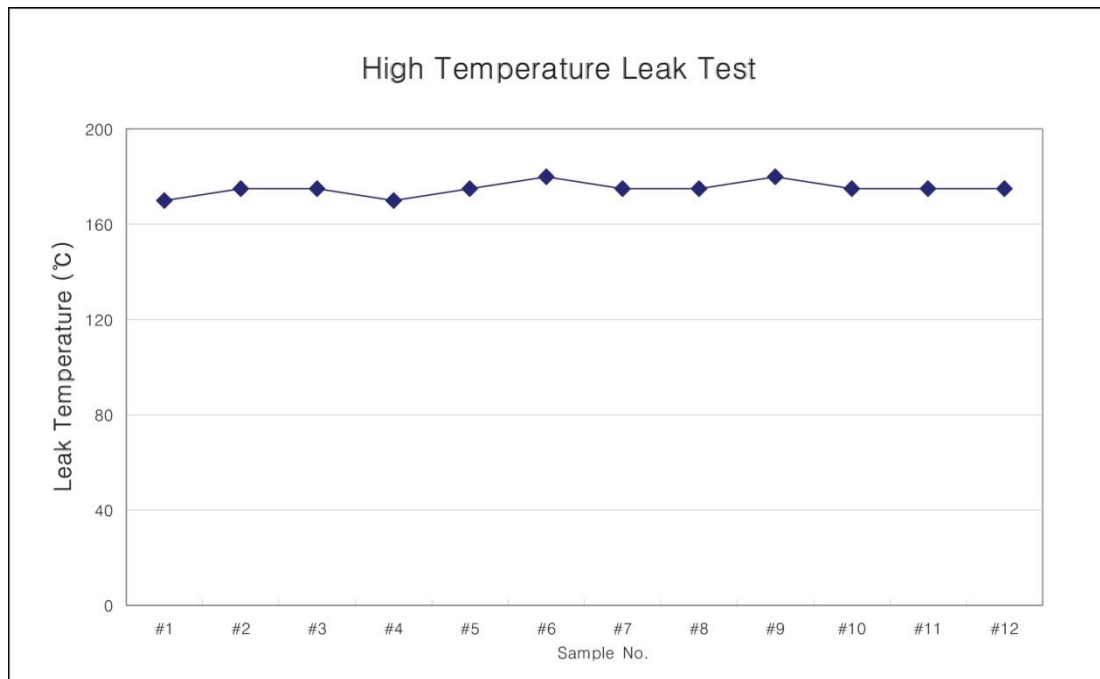


Fig. 6 Leak Test at High Temperature

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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 ($T_w - T_t$).

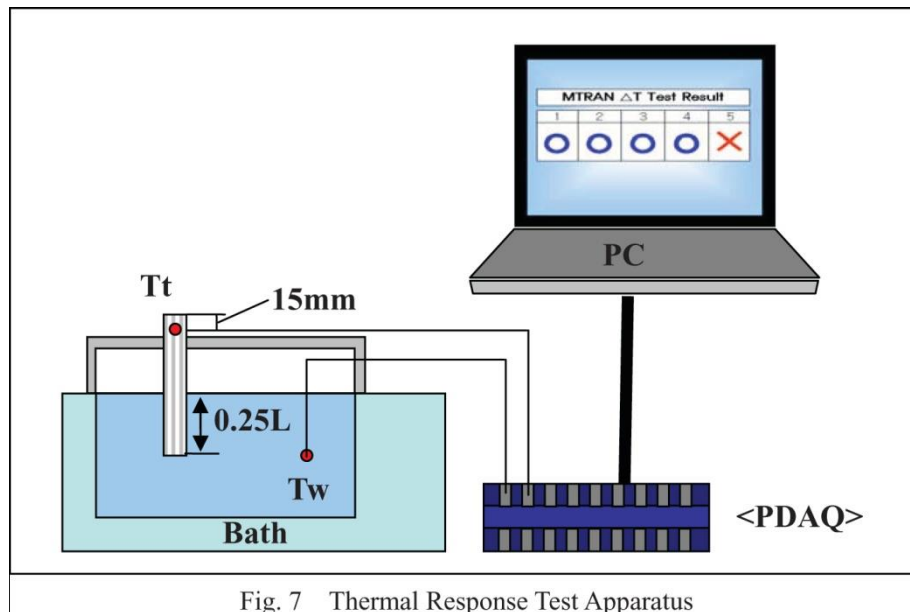


Fig. 7 Thermal Response Test Apparatus

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