ATS ADVANCED THERMAL SOLUTIONS, INC.
Innovation in Thermal Management®

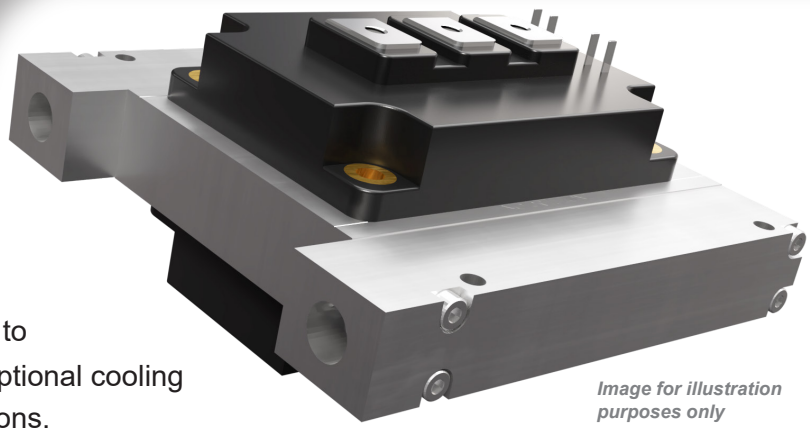


*Image for illustration purposes only*

# DUAL-SIDED, HIGH-FLOW COLD PLATES

Dual-Sided High-Flow Cold Plates provide the flexibility to mount components on both sides, increasing their exceptional cooling performance and adaptability for high-demand applications.

These cold plates can be used in high-flow applications, where coolant flows up to 4 GPM are readily accommodated. At these higher flow rates, a thermal resistance as low as 0.0021°C/W can be achieved.

Each cold plate has etched “NO DRILL ZONES” on both sides to provide a visual guide for various mounting schemes. The component cooling area can only be drilled to a depth of 7mm to avoid damaging the internal fluid channels (please see drawings on the following individual part pages).

If the coolant has particles, a #60 filter or finer is recommended to remove possible particles in the liquid.

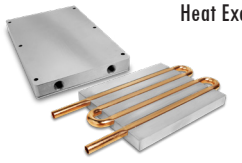
## FEATURES AND BENEFITS

- Dual-sided cooling: Cool components on both sides of the cold plate
- High volumetric flow rate, up to 4 GPM
- Thermal resistance as low as 0.0021°C/W
- Compact size
- 1/4” NPT threaded input and output
- Provides uniform cold plate surface temperature
- Maximum pressure: 100 psi

## ADDITIONAL COMPONENTS DEPLOYED IN LIQUID COOLING LOOPS

Heat Exchangers

Leak Detectors & Flow Meters



Cold Plates


Chillers


iCDM

ATS has the products needed to design a complete liquid cooling loop: **Cold Plates** to transfer and remove the heat from the source, **Heat Exchangers** to transfer heat from the liquid to the air with or without a fan, and **Chillers** to circulate and condition the fluid in the system. In addition, ATS offers **Flow Meters** and **Leak Detectors** to monitor the system. The **iCDM** (Industrial Cooling Distribution Module) is a liquid loop in a single stand-alone system that connects to an external cold plate.

## ATS COLD PLATES

**» Innovative Technology**
Superior heat transfer with a flexible design platform

**» Easy Connection**
Industry standard threaded hole sizes allow hassel-free connection options

**» Safe & Reliable**
Individually tested, leak-free

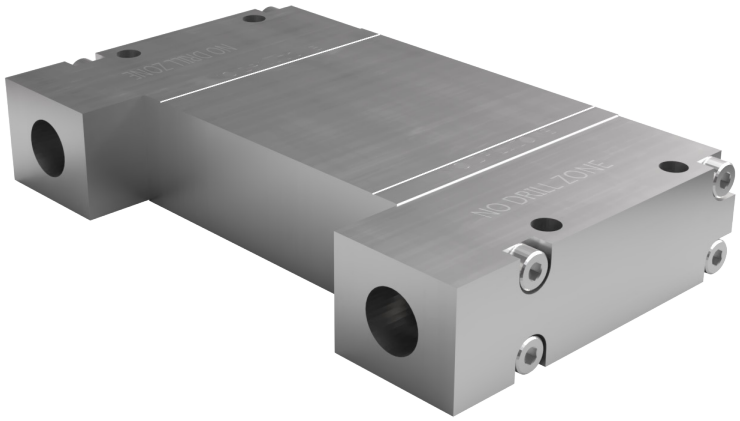
**» Custom Options**
Choose from various options, i.e; fitting types, material types, device mounting and more. Contact ATS for additional information

**» Customization Available!**
ATS will customize any cold plate to fit into your application

## APPLICATIONS

Automotive Industry, Uninterruptible Power Supplies, Wind Turbines, Photovoltaic Inverters, Power Electronics, Induction Heaters, Motor Devices, Utility Vehicles, Anywhere Power Devices are used

RoHS COMPLIANT




# ATS-THCP1000

**Dimensions (L x W x H)**

Component Area

62 x 62 mm

(2.4 x 2.4")

Overall

77 x 131 x 24 mm

(3.0 x 5.2 x 0.9")

**Material**

Aluminum 6063-T5

**Weight**

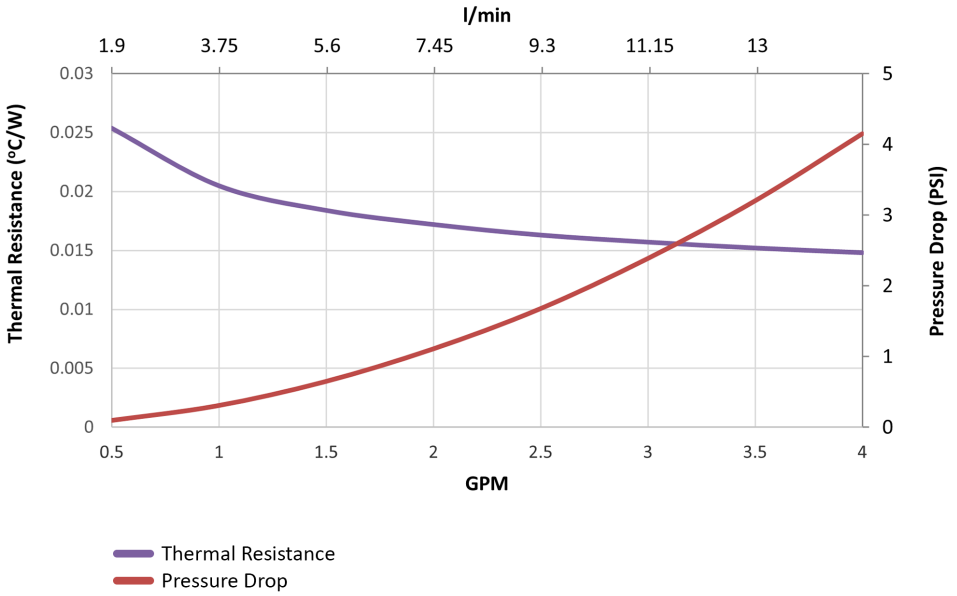
491 g

## PERFORMANCE

| THCP1000 Performance (Water as fluid) | | |
|---|---|---|
| Flow Rate (gallon/min)* | Thermal Resistance (°C/W) | ΔP (psi) |
| 0.5 | 0.0254 | 0.090 |
| 1.0 | 0.0205 | 0.300 |
| 1.5 | 0.0184 | 0.640 |
| 2.0 | 0.0172 | 1.100 |
| 2.5 | 0.0163 | 1.670 |
| 3.0 | 0.0157 | 2.380 |
| 3.5 | 0.0152 | 3.198 |
| 4.0 | 0.0148 | 4.150 |

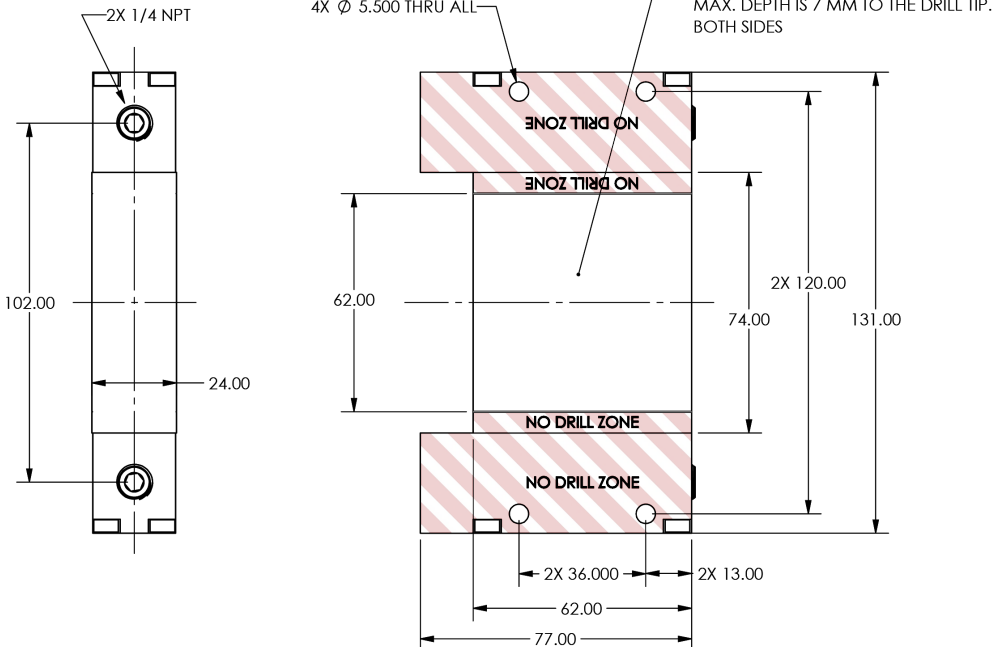
* Note: To convert to l/min, multiply by 3.8

Thermal Resistance and Pressure Drop for ATS-THCP1000

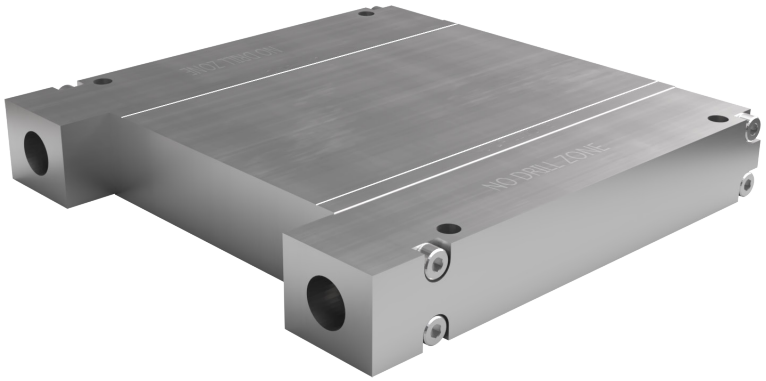



## MECHANICAL SPECIFICATIONS

(all dimensions in mm)



# ATS-THCP1001




**Dimensions (L x W x H)**

Component Area

128 x 78 mm

(5.0 x 3.1”)

Overall

143 x 147 x 24 mm

(5.6 x 5.8 x 0.9”)

**Material**

Aluminum 6063-T5

**Weight**

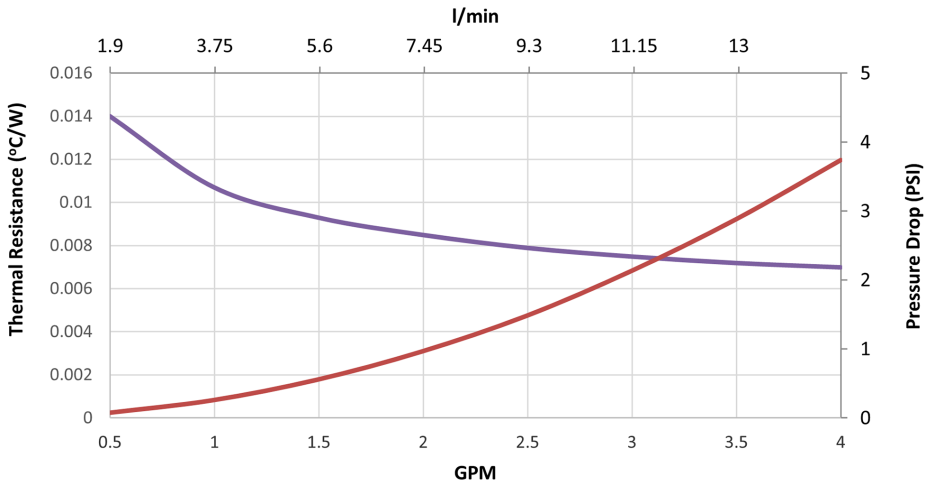
1,046 g

## PERFORMANCE

| THCP1001 Performance (Water as fluid) | | |
|---|---|---|
| Flow Rate (gallon/min)* | Thermal Resistance (°C/W) | ΔP (psi) |
| 0.5 | 0.0140 | 0.071 |
| 1.0 | 0.0107 | 0.255 |
| 1.5 | 0.0093 | 0.553 |
| 2.0 | 0.0085 | 0.962 |
| 2.5 | 0.0079 | 1.480 |
| 3.0 | 0.0075 | 2.130 |
| 3.5 | 0.0072 | 2.880 |
| 4.0 | 0.0070 | 3.739 |

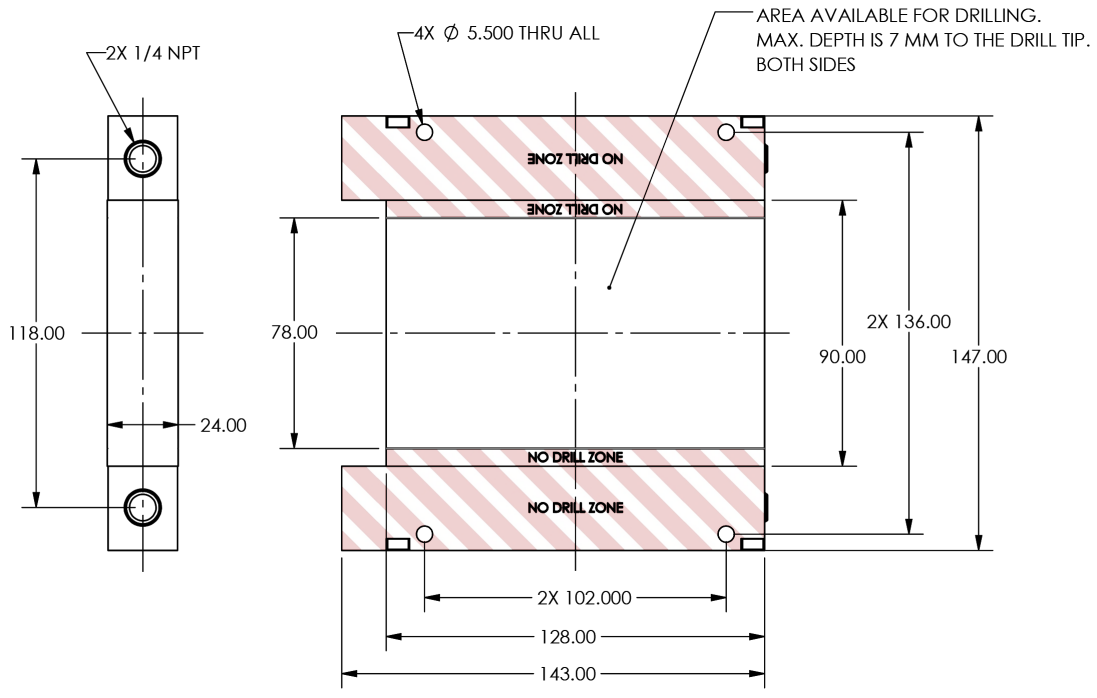
* Note: To convert to l/min, multiply by 3.8

Thermal Resistance and Pressure Drop for ATS-THCP1001




## MECHANICAL SPECIFICATIONS

(all dimensions in mm)



# ATS-THCP1002

**Dimensions (L x W x H)**

Component Area

198 x 78 mm

(7.8 x 3.1")

Overall

209 x 147 x 24 mm

(8.2 x 5.8 x 0.9")

**Material**

Aluminum 6063-T5

**Weight**

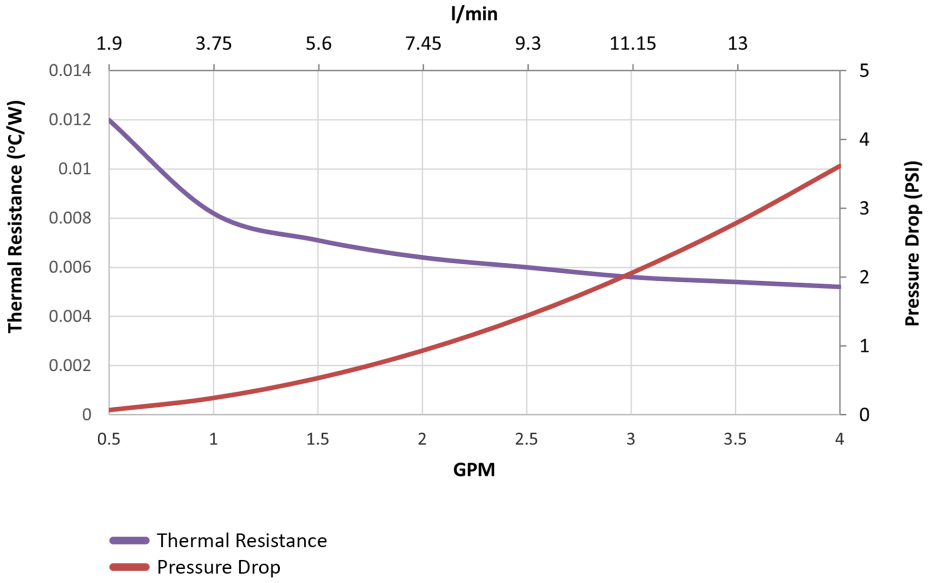
1,540 g

## PERFORMANCE

| THCP1002 Performance (Water as fluid) | | |
|---|---|---|
| Flow Rate (gallon/min)* | Thermal Resistance (°C/W) | ΔP (psi) |
| 0.5 | 0.0120 | 0.065 |
| 1.0 | 0.0082 | 0.240 |
| 1.5 | 0.0071 | 0.527 |
| 2.0 | 0.0064 | 0.925 |
| 2.5 | 0.0060 | 1.432 |
| 3.0 | 0.0056 | 2.052 |
| 3.5 | 0.0054 | 2.778 |
| 4.0 | 0.0052 | 3.615 |

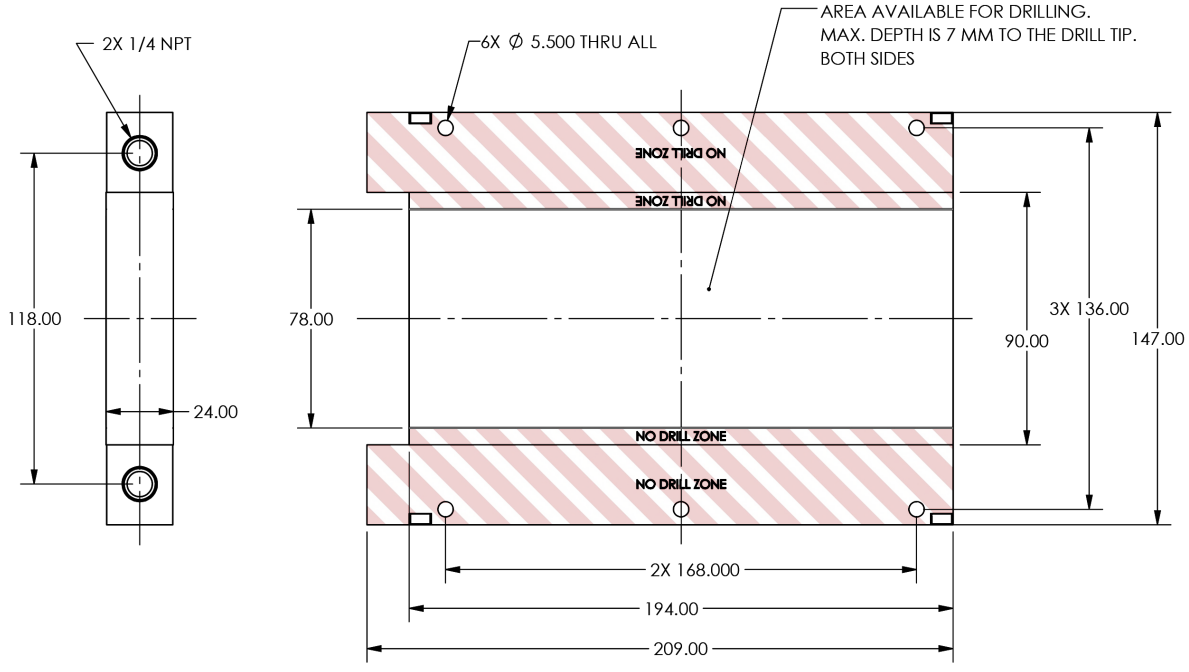
* Note: To convert to l/min, multiply by 3.8

Thermal Resistance and Pressure Drop for ATS-THCP1002

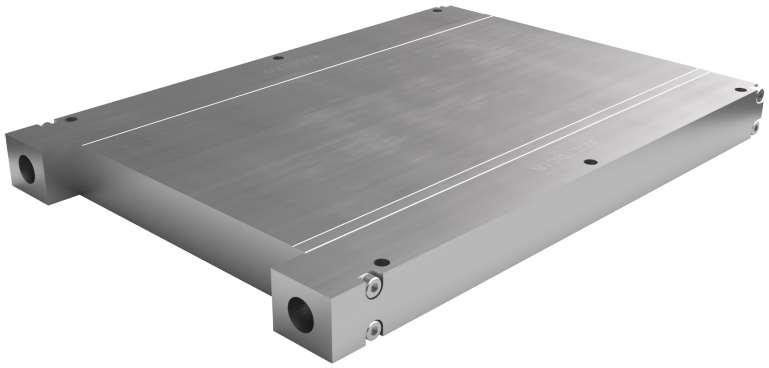



## MECHANICAL SPECIFICATIONS

(all dimensions in mm)



# ATS-THCP1003



**Dimensions (L x W x H)**

Component Area

260 x 127 mm

(10.2 x 5.0”)

Overall

275 x 196 x 24 mm

(10.8 x 7.7 x 0.9”)

**Material**

Aluminum 6063-T5

**Weight**

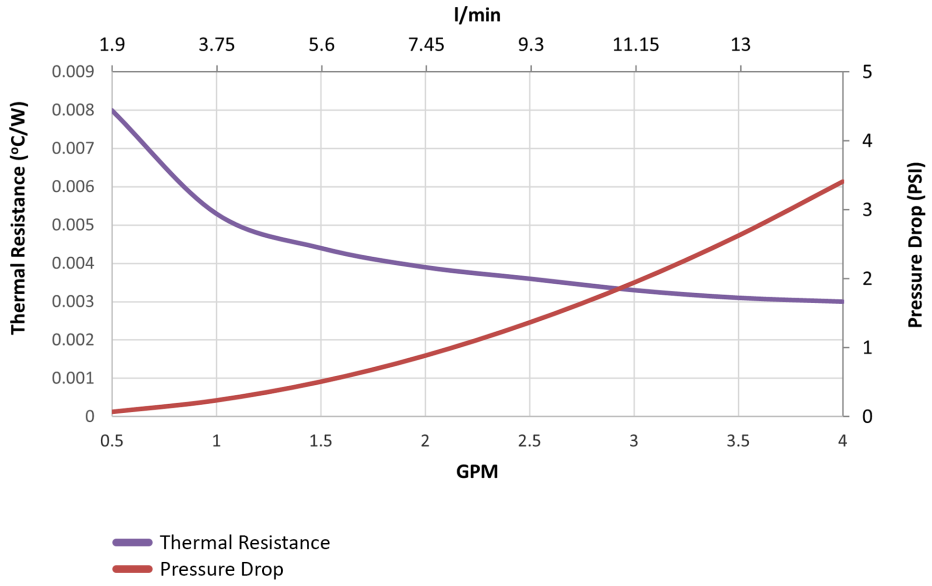
2,784 g

## PERFORMANCE

| THCP1003 Performance (Water as fluid) | | |
|---|---|---|
| Flow Rate (gallon/min)* | Thermal Resistance (°C/W) | ΔP (psi) |
| 0.5 | 0.0080 | 0.064 |
| 1.0 | 0.0053 | 0.230 |
| 1.5 | 0.0044 | 0.500 |
| 2.0 | 0.0039 | 0.878 |
| 2.5 | 0.0036 | 1.360 |
| 3.0 | 0.0033 | 1.940 |
| 3.5 | 0.0031 | 2.624 |
| 4.0 | 0.0030 | 3.412 |

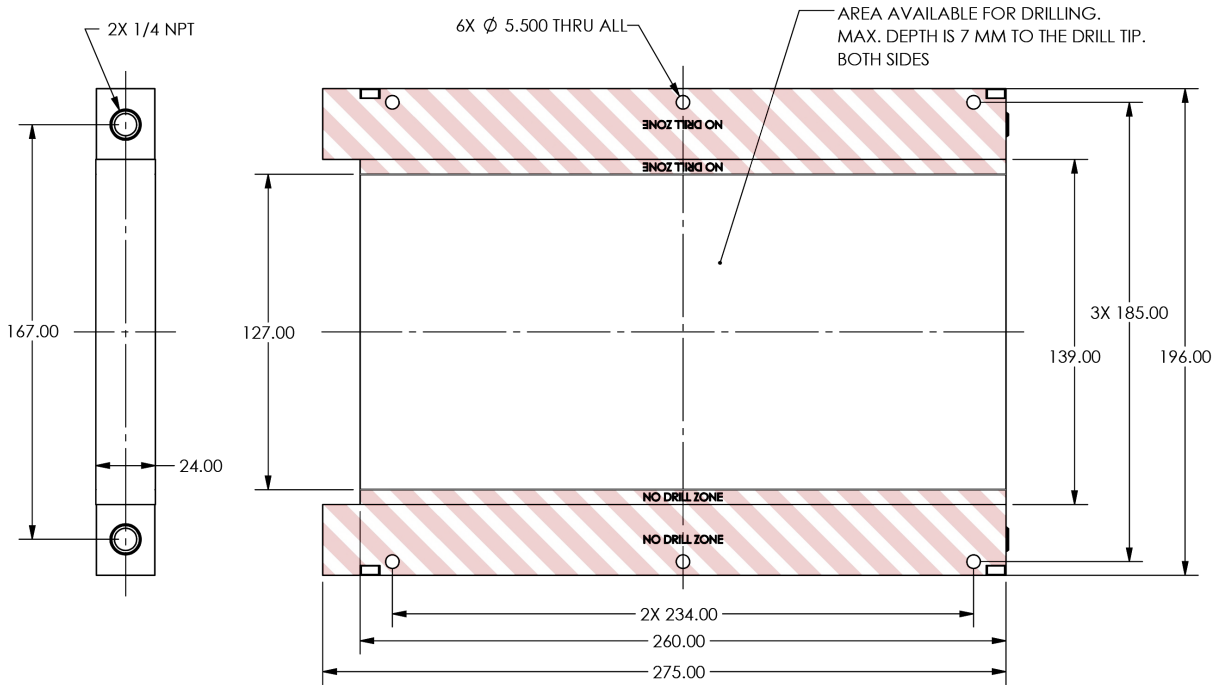
* Note: To convert to l/min, multiply by 3.8

Thermal Resistance and Pressure Drop for ATS-THCP1003

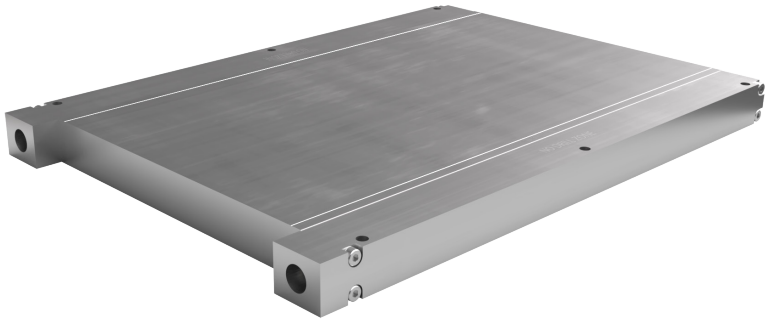



## MECHANICAL SPECIFICATIONS

(all dimensions in mm)



# ATS-THCP1004



**Dimensions (L x W x H)**

Component Area

326 x 178 mm

(12.8 x 7.0”)

Overall

341 x 247 x 24 mm

(13.4 x 9.7 x 0.9”)

**Material**

Aluminum 6063-T5

**Weight**

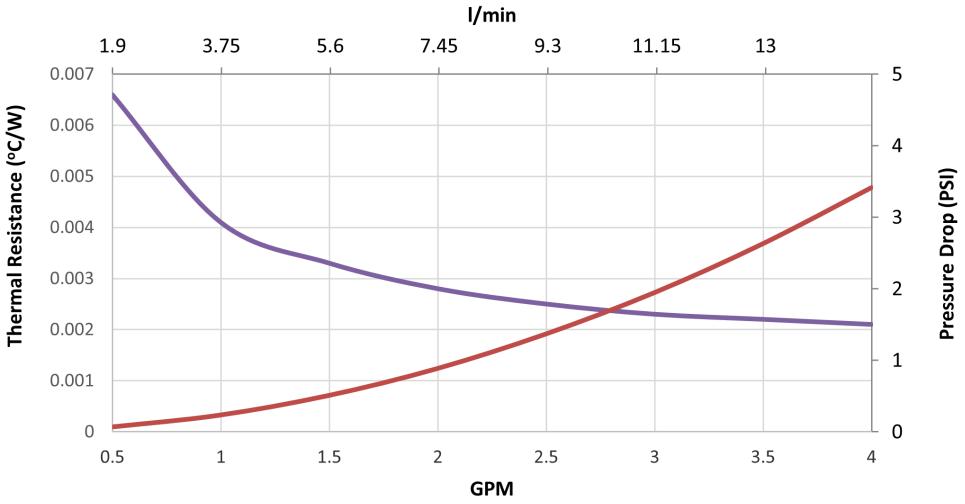
4,446 g

## PERFORMANCE

| THCP1004 Performance (Water as fluid) | | |
|---|---|---|
| Flow Rate (gallon/min)* | Thermal Resistance (°C/W) | ΔP (psi) |
| 0.5 | 0.0066 | 0.066 |
| 1.0 | 0.0041 | 0.232 |
| 1.5 | 0.0033 | 0.505 |
| 2.0 | 0.0028 | 0.881 |
| 2.5 | 0.0025 | 1.364 |
| 3.0 | 0.0023 | 1.943 |
| 3.5 | 0.0022 | 2.629 |
| 4.0 | 0.0021 | 3.414 |

* Note: To convert to l/min, multiply by 3.8

Thermal Resistance and Pressure Drop for ATS-THCP1004




## MECHANICAL SPECIFICATIONS

(all dimensions in mm)