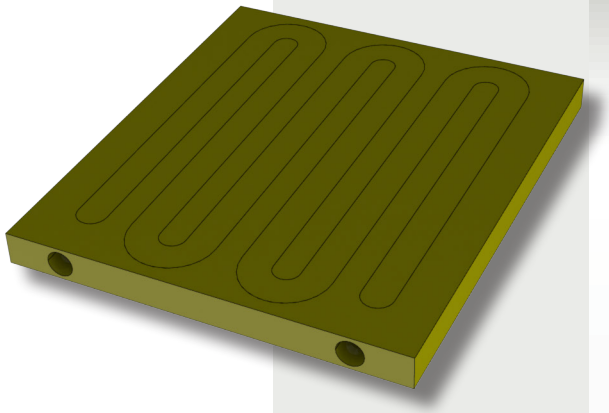
WAKEFIELDTHERMAL

FRICTION STIR WELDED COLD PLATES DATA SHEET



Wakefield Thermal produces an extensive array of standard and custom Friction Stir Welding (FSW) Liquid Cold Plates. Friction Stir Welding, a solid-state welding method, seamlessly joins two metal pieces without melting them. Leveraging Wakefield Thermal's in-house Friction Stir Welding capabilities, its products surpass traditional techniques in Cold Plate manufacturing.

FEATURES & BENEFITS

- Solid-State Welding
- High Strength Joints
- Fatigue Resistance
- Compatibility with Dissimilar Metals
- Narrow Heat-Affected Zone
- Versatility
- Dimensional Stability
- Cost Efficiency
- Environmental Friendliness

Throughout the production process, the Friction Stir Welding equipment crafts joints with exceptional strength and fatigue resistance, even when amalgamating dissimilar metals. Furthermore, FSW yields a narrower heat-affected zone compared to traditional welding methods, curtailing distortion and enhancing dimensional reliability.

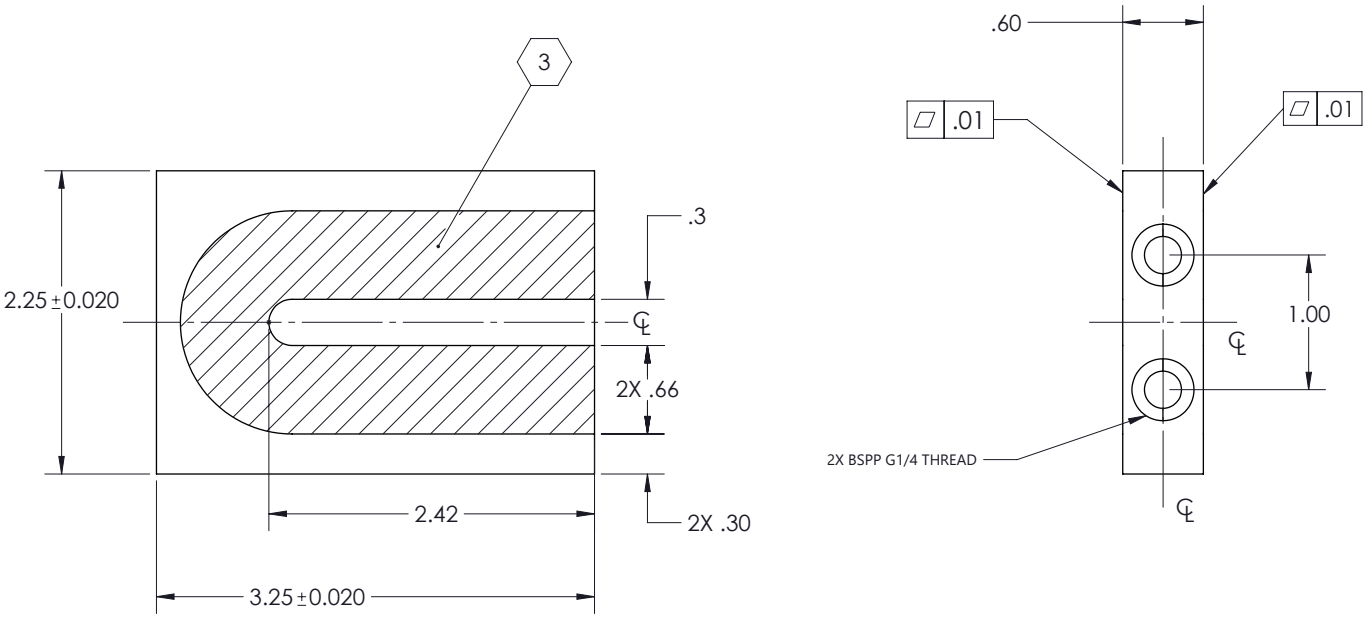
Wakefield Part Number	Description	Dimensions - Overall	Thermal Resistance @ GPM	Material
131565	Friction Stir Welded Cold Plate 2 Pass- 3.25"	3.25" L x2.25" W x .6" H (82.55mm x 57.15mm x 15.24mm)	0.0479 @ 1 GPM	Aluminum
131566	Friction Stir Welded Cold Plate 4 Pass- 8"	8.00" L x5.00" W x .6" H (203.2mm x 127.0mm x 15.24mm)	0.0154 @1 GPM	Aluminum
131567	Friction Stir Welded Cold Plate 4 Pass- 14"	14.00" L x5.00" W x .6" H (355.6mm x 127.0mm x 15.24mm)	0.0106 @1 GPM	Aluminum
131568	Friction Stir Welded Cold Plate 6 Pass- 8"	8.00" L x7.00" W x .6" H (203.2mm x 177.8mm x 15.24mm)	0.0121 @1 GPM	Aluminum
131569	Friction Stir Welded Cold Plate 6 Pass- 14"	14.00" L x7.00" W x .6" H (355.6mm x 177.8mm x 15.24mm)	0.0087 @1 GPM	Aluminum
131570	Friction Stir Welded Cold Plate 6 Pass-26"	26.00" L x7.00" W x .6" H (660.4mm x 177.8mm x 15.24mm)	0.0063 @ 1 GPM	Aluminum

131565

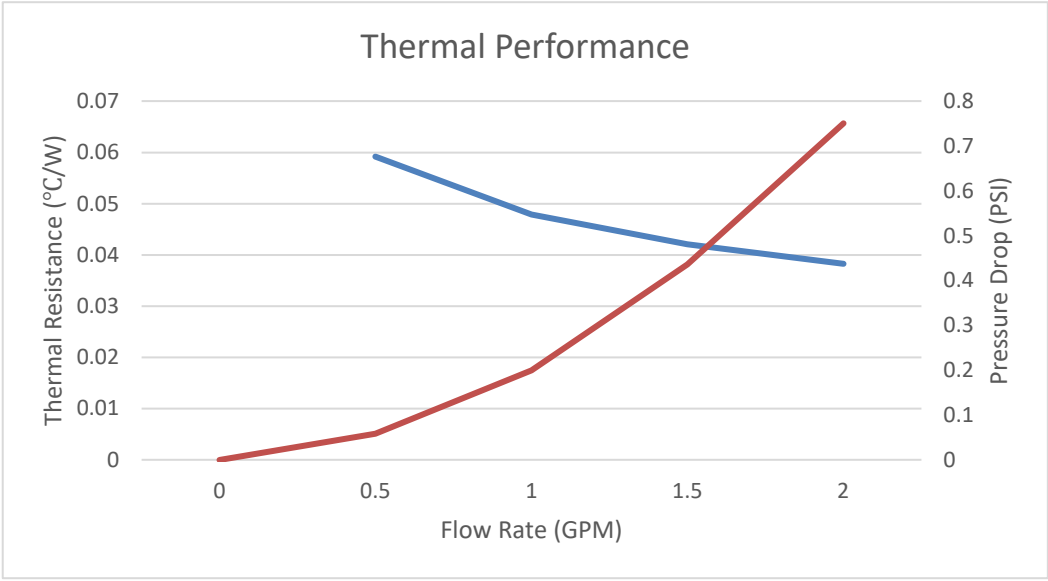
For Custom Friction Welded Cold Plates,

CONTACT WAKEFIELD

NOTES
1. MATERIAL: AL6061-T6
2. FINISH: WASH.
3. KEEPOUT AREA IDENTIFIED WITH CROSS HATCHING FOR TOP AND BOTTOM. DO NOT MACHINE IN THIS AREA.



THERMAL CURVES



Thermal performance is measured as max plate temp - inlet fluid temp / heat dissipation

131566

For Custom Friction Welded Cold Plates,

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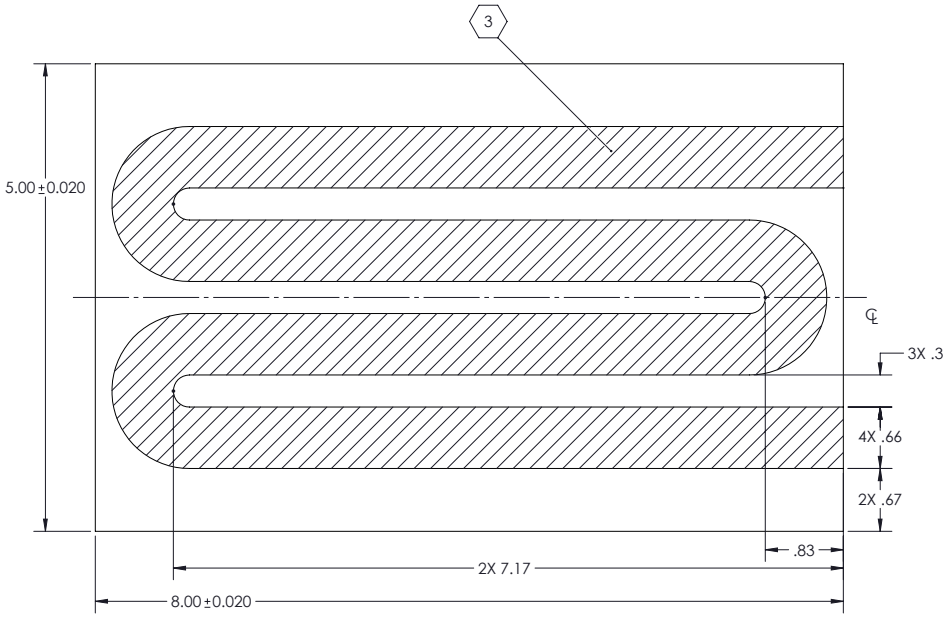
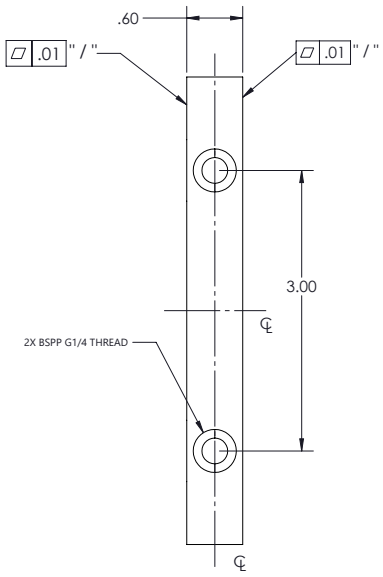
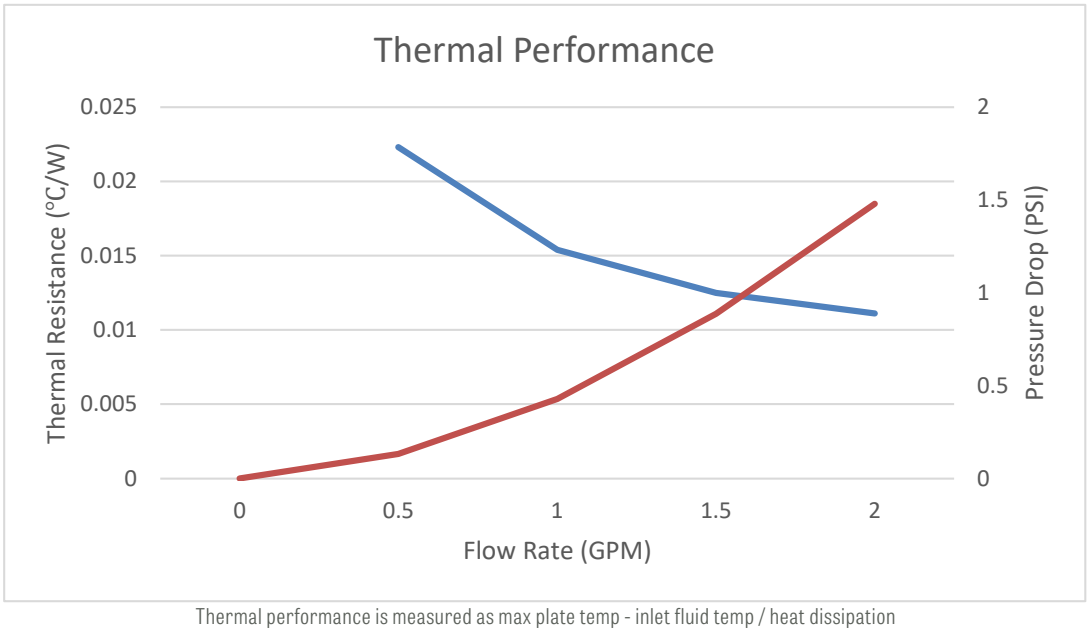




THERMAL CURVES



Thermal performance is measured as max plate temp - inlet fluid temp / heat dissipation

131567

For Custom Friction Welded Cold Plates,

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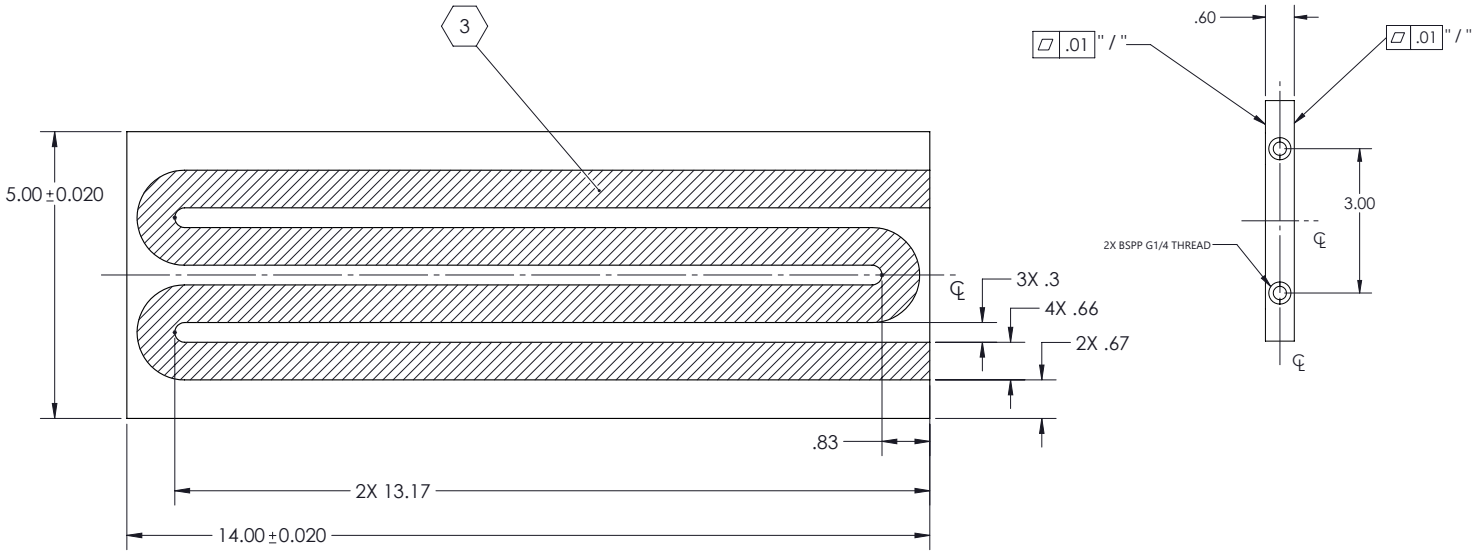

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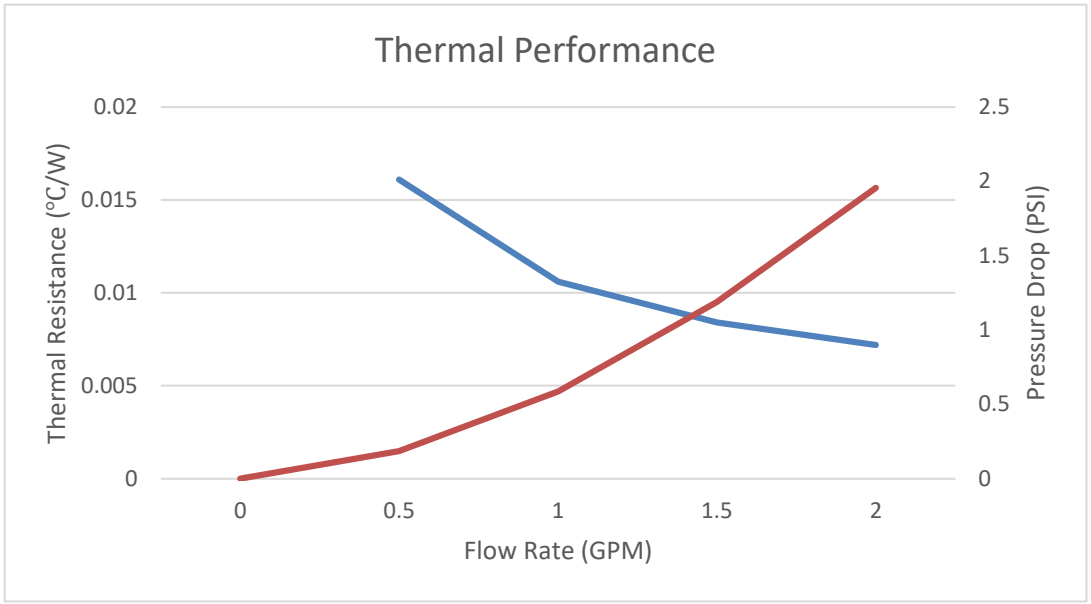

Thermal performance is measured as max plate temp - inlet fluid temp / heat dissipation

131568

For Custom Friction Welded Cold Plates,

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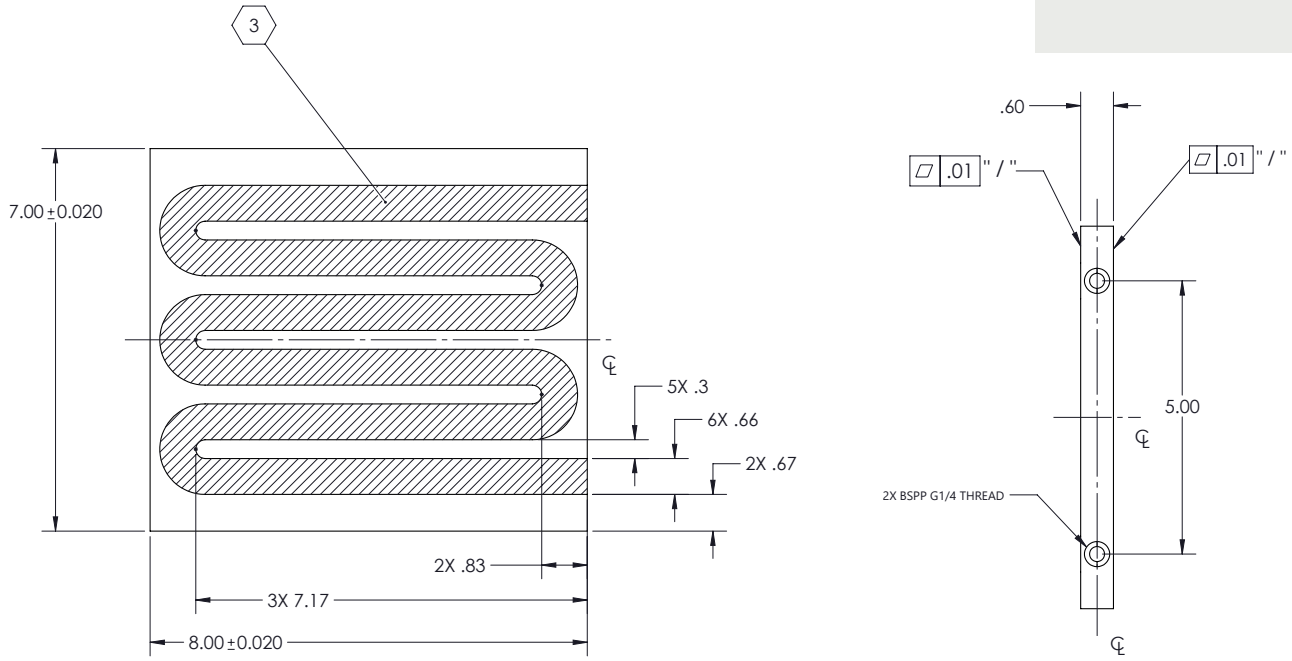

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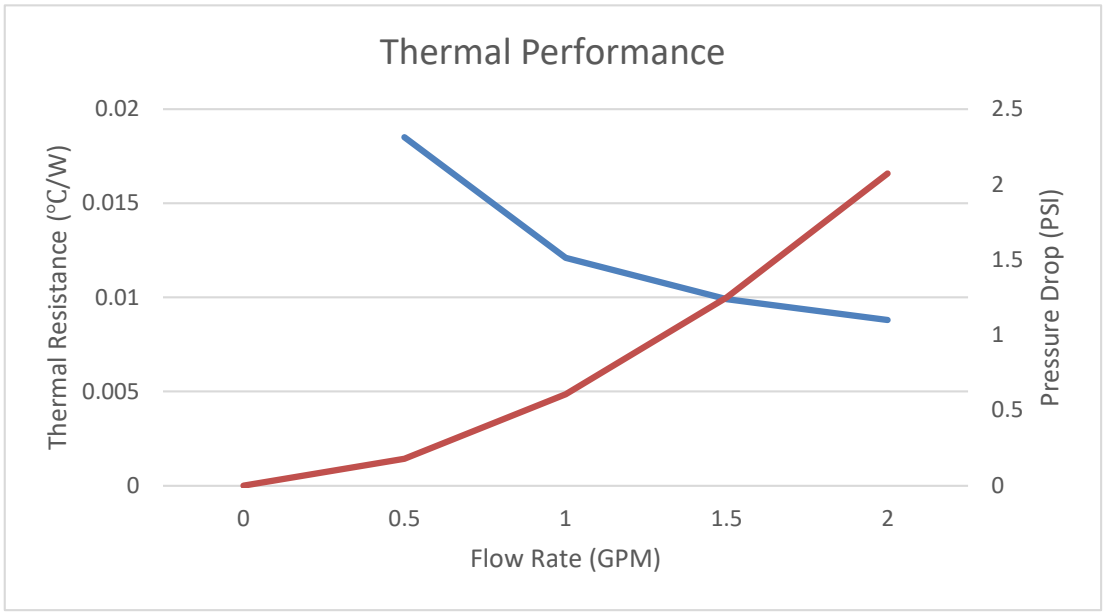

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131569

For Custom Friction Welded Cold Plates,

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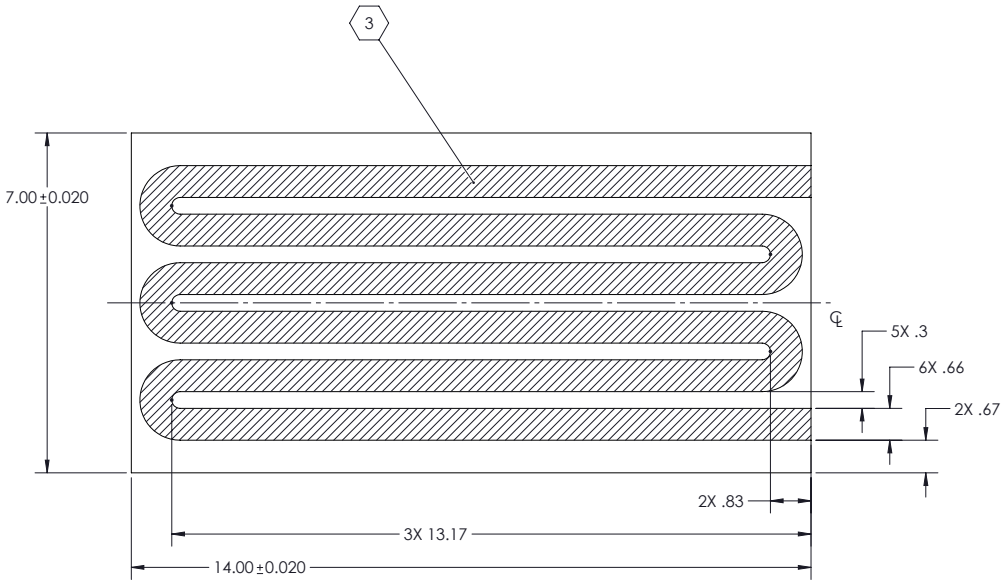

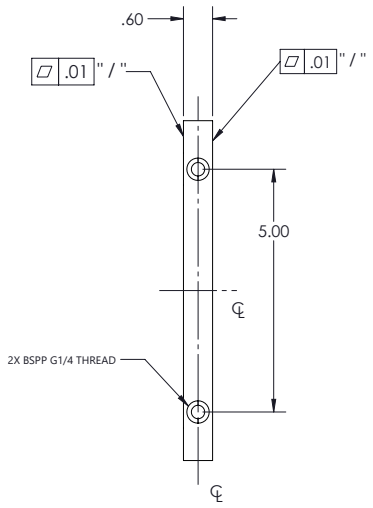

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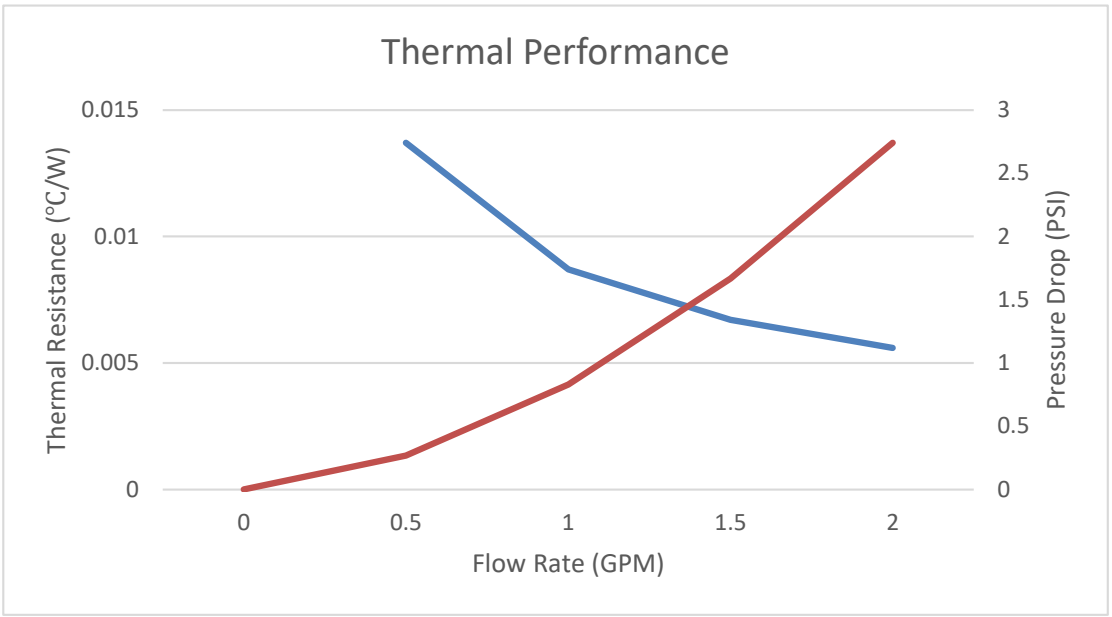

Thermal performance is measured as max plate temp - inlet fluid temp / heat dissipation

131570

For Custom Friction Welded Cold Plates,

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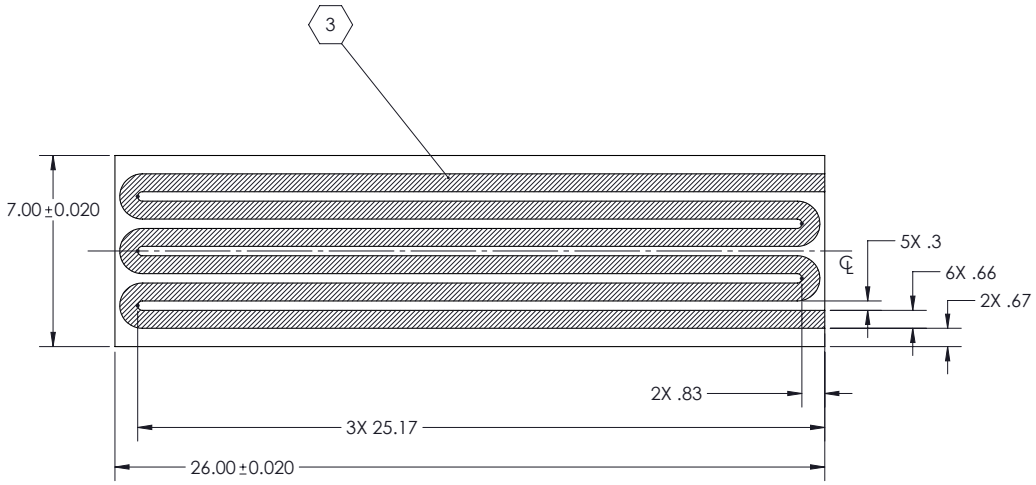

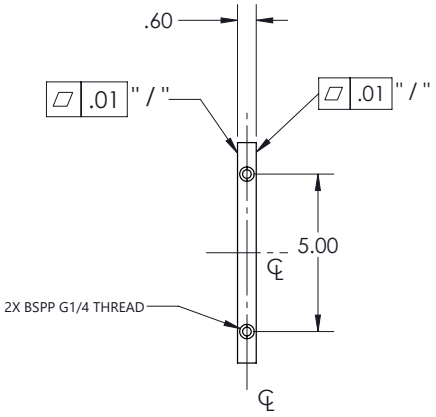

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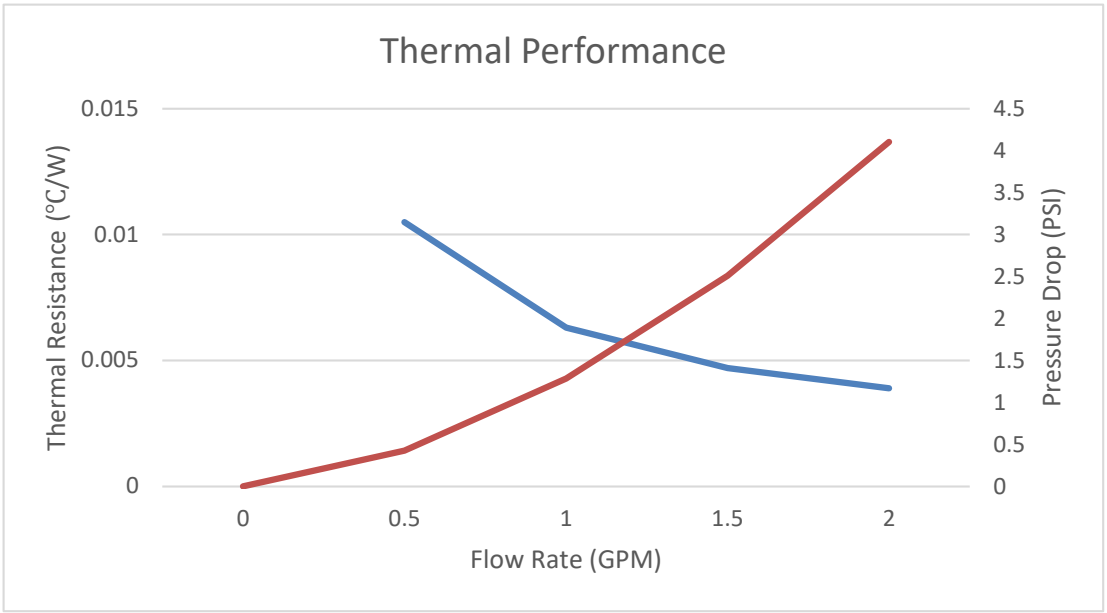

Thermal performance is measured as max plate temp - inlet fluid temp / heat dissipation

COOLVATION
Innovative Thermal Solutions
COOLED BY WAKEFIELD THERMAL

5 STEP
THERMAL ENGINEERING GUIDE
From Concept To Cooling

COOLVATION provides thermal management engineering services to improve products' thermal performance while applying cost effective solutions to eliminate unnecessary manufacturing costs. COOLVATION is a seamless resource extension for our customers' thermal & mechanical engineering teams from ideation to lab testing.

Customer Thermal Challenge
Physical limitations
Power constraints
Air flow/ fluid conditions
Environmental conditions
Component specifications
Define ideal state

01 STEP

Execution
Concept analysis
(CFD-ansys/ ice pack, fin optimizations software)
Solid model
Analysis & verification
Cost analysis

03 STEP

Global Manufacturing
Global manufacturing facilities
Global warehousing
Global labs to support future program

05 STEP

02 STEP

Collaboration
Review conditions
Statement of work to customer
Historical consideration along with cutting edge technologies to provide cost effective solution

04 STEP

Solution & Verification
Dedicated new product development center
Prototype
Physical thermal lab testing
Proven manufacturability

WakefieldThermal.com
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