



# picoHEX™

## Compact Heat Exchangers

ATS picoHEX™ heat exchangers add high performance cooling to small form factor applications where traditional size exchangers will not fit. Their compact design is built on the ATS family of Ultra-Cool CPU coolers, and their cooling properties are consistent with ATS' wide line of exchangers. picoHEX™ heat exchangers can be used for cooling CPUs, GPUs, FPGAs and other high power components.

The tube-to-fin, liquid-to-air design of picoHEX™ compact heat exchangers includes the industry's highest density fins. This feature maximizes heat transfer from liquid to air, allowing the liquid to be cooled to lower temperatures than other heat exchangers on the market. The fins and tubes are made of copper and stainless steel and can be used with a wide variety of fluids, including water, dielectric fluids and custom designed heat transfer fluids.



### GENERAL FEATURES

- » Length: 90.0 to 138.0 mm (3.54 to 5.43")
- » Width: 90.0 to 92.0 mm (3.54 to 3.62")
- » Height: 29.0 to 64.0 mm (1.14 to 2.52")
- » Tube diameter: 6.35 mm (0.25")
- » Copper tubes
- » Copper fins
- » High-efficiency and high density fin design
- » Silver-solder brazed joints
- » Internally cleaned and corrosion protected
- » Externally coated for corrosion protection
- » Can be customized for different fans or blowers
- » 100% pressure tested

### APPLICATIONS

- » CPU, GPU, FPGA Cooling
- » Laser Cooling
- » Medical Diagnostic Equip
- » Electronics Cooling
- » Imaging Equipment
- » Compressor Cooling
- » Semiconductor Processing
- » HVAC
- » 2U, 3U Servers & Chassis
- » Food & Beverage Processing
- » Botanical Extraction
- » Industrial Equipment

For further information, please contact  
Advanced Thermal Solutions, Inc. at  
**781-769-2800** or **qats.com**





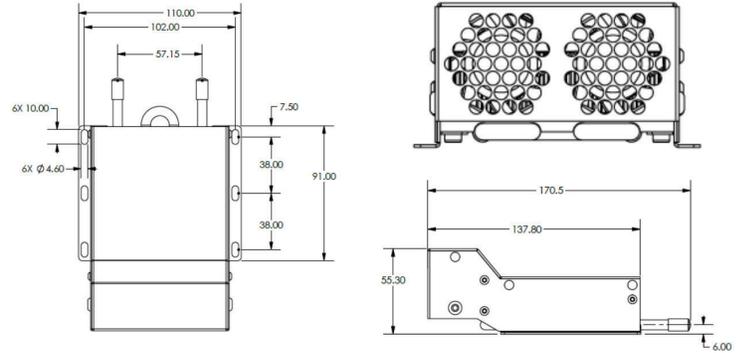
**ATS-PHEX-100**



Fan Specifications	Duty Cycle 20%	Duty Cycle 100%
Air Flow (CFM)	2.8	33.0
Input Power (W)	0.72	30.2
Speed (RPM)	3000	29500
Noise Level (dB)	20	70
Air Pressure (mmH <sub>2</sub> O/psi)	1.78/.002	173.48/.25

- » Heat Transfer Capacity: Up to 10W per  $\Delta T = 1^{\circ}C$
- »  $\Delta T$  = inlet liquid temperature - inlet air temperature
- » Air Movers: 2 fans
- » Fan Voltage: 12 VDC
- » Dimensions: 138 x 92 x 42 mm (5.43 x 3.62 x 1.65")
- » Weight w/fan: 1261g (2.77lbs)
- » Maximum Pressure: 100 psi
- » Pipe Diameter: 6.35 mm
- » Fan Lead Wire Pin Out:

» Pin 1-Black (-), Pin 2-Red (+), Pin 3-Yellow (Tach), Pin 4-Brown (PWM)



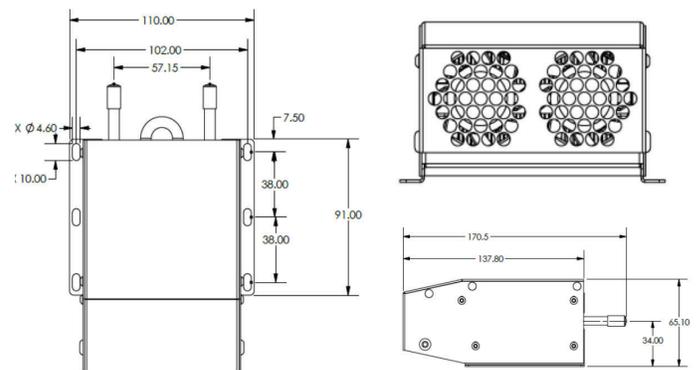
**ATS-PHEX-101**



Fan Specifications	Duty Cycle 20%	Duty Cycle 100%
Air Flow (CFM)	2.8	33.0
Input Power (W)	0.72	30.2
Speed (RPM)	3000	29500
Noise Level (dB)	20	70
Air Pressure (mmH <sub>2</sub> O/psi)	1.78/.002	173.48/.25

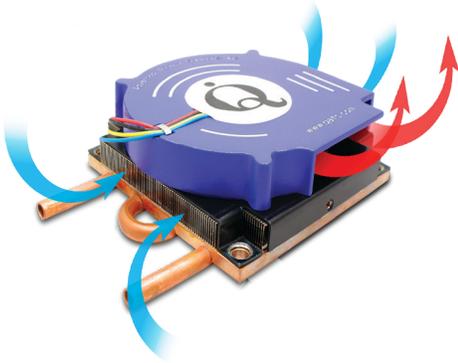
- » Heat Transfer Capacity: Up to 15W per  $\Delta T = 1^{\circ}C$
- »  $\Delta T$  = inlet liquid temperature - inlet air temperature
- » Air Movers: 2 fans
- » Fan Voltage: 12 VDC
- » Dimensions: 138 x 92 x 64 mm (5.43 x 3.62 x 2.52")
- » Weight w/fan: 2086g (4.59 lbs)
- » Maximum Pressure: 100 psi
- » Pipe Diameter: 6.35 mm
- » Fan Lead Wire Pin Out:

» Pin 1-Black (-), Pin 2-Red (+), Pin 3-Yellow (Tach), Pin 4-Brown (PWM)



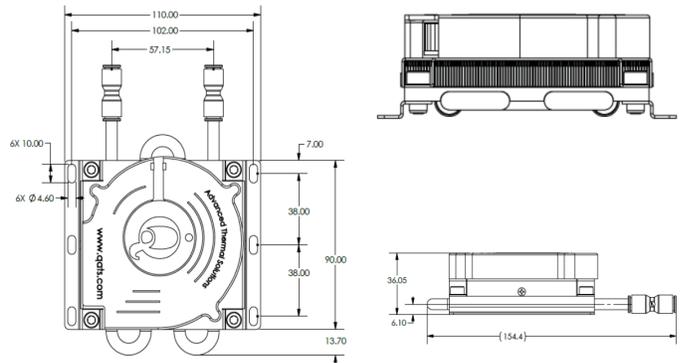


**ATS-PHEX-102**



- » Heat Transfer Capacity: Up to 5W per  $\Delta T = 1^\circ C$
- »  $\Delta T$  = inlet liquid temperature - inlet air temperature
- » Air Mover: 1 Blower
- » Fan Voltage: 12 VDC
- » Dimensions: 90 x 90 x 29 mm (3.54 x 3.54 x 1.13")
- » Weight w/fan: 743.8g (1.64 lbs)
- » Maximum Pressure: 100 psi
- » Pipe Diameter: 6.35 mm
- » Lead Wire Pin Out:
  - » Pin 1-Black (-), Pin 2-Red (+12V), Pin 3-Yellow (Tach), Pin 4-Blue (PWM)

Fan Specifications	
Air Flow (CFM)	20.28 (Min: 18.25)
Input Power (W)	15 (Max: 30)
Speed (RPM)	5000 $\pm 10\%$
Noise Level (dB)	58.1 (Max: 60)
Air Pressure (mmH <sub>2</sub> O)	42.41 (Min: 38.16)



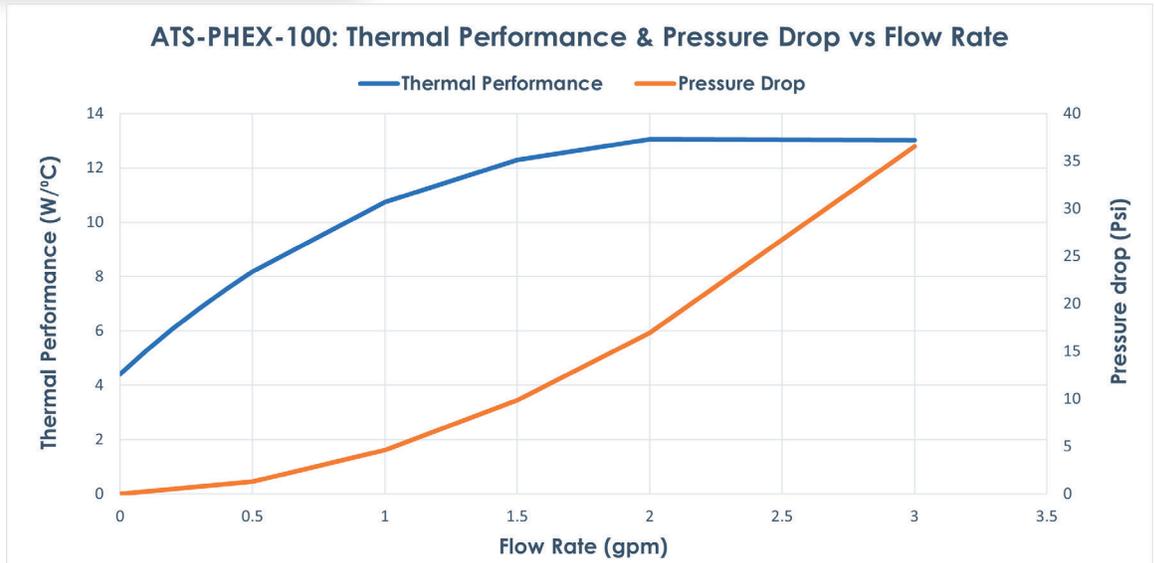
**ADDITIONAL COMPONENTS DEPLOYED IN LIQUID COOLING LOOPS**



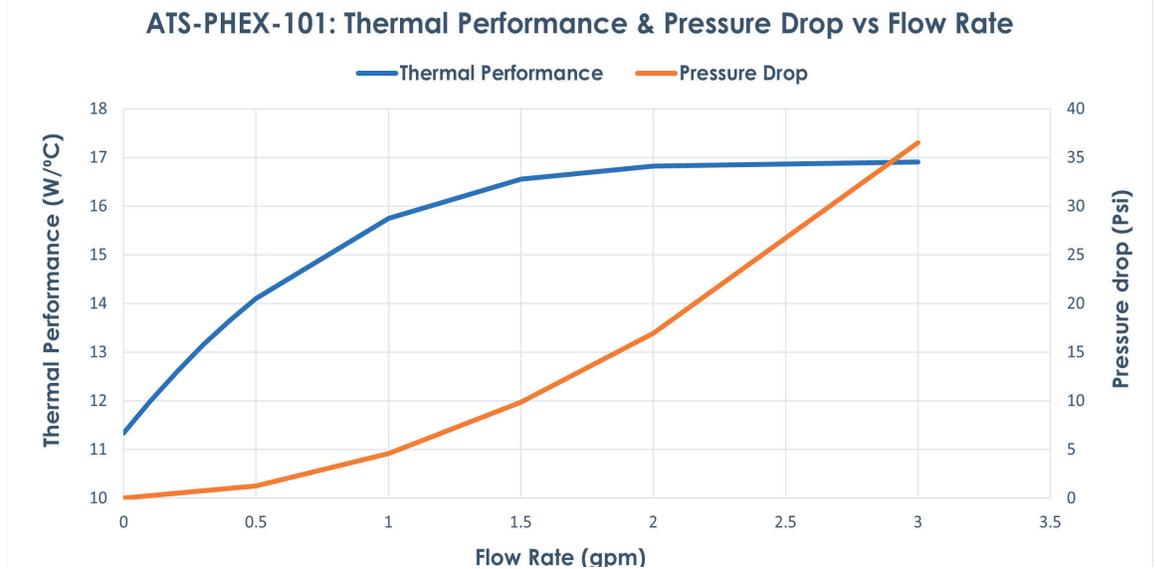
ATS has the products needed to design a complete liquid cooling loop: **Cold Plates** to transfer and remove the heat from the source, **Heat Exchangers** to transfer heat from the liquid to the air with or without a fan, and **Chillers** to circulate and condition the fluid in the system. In addition, ATS offers **Flow Meters** to instantaneously measure the volumetric flow rate of the fluid in the system and **Leak Detectors** to notify users of any leaks in the system.



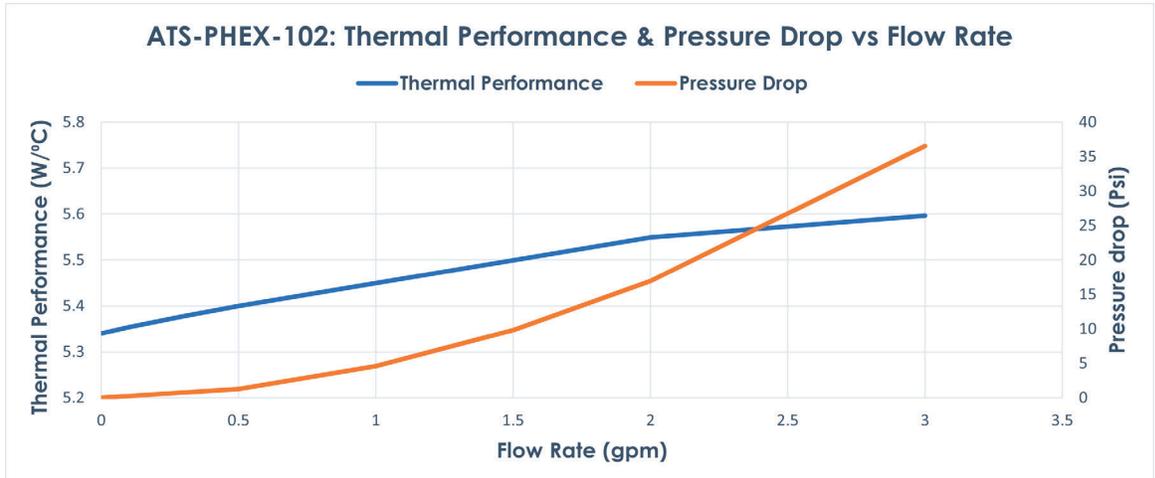
■ Thermal Performance  
■ Pressure Drop



■ Thermal Performance  
■ Pressure Drop



■ Thermal Performance  
■ Pressure Drop



**Note:** Performance curves are per  $\Delta T = 1^\circ C$  |  $\Delta T = \text{inlet liquid temperature} - \text{inlet air temperature}$