

# Cold Plates

140-1630 BTU/hr

AIR COOLED

## AHP-CPV SERIES LABORATORY USE

### STANDARD

- Integral front panel temperature control
- Bench top design
- Universal input 100-240 VAC
- External RTD sensor capable
- RS-232 Comms with EzLog programming and logging
- Multi step ramp & soak
- Auto tuning for best control
- Heating to 90 °C
- Cooling to -15 °C
- Cascade accessory to -40 °C and lower
- Many standard and custom accessories
- Internal RTD standard

AIR COOLED

## AHP-CP SERIES GENERAL PURPOSE

### FEATURES

- VAC & VDC versions
- Industrial & OEM use
- Cooling to -15/-20 °C
- Strong mounting on or through bench/wall
- Optional heating
- Remote temperature control versions
- Sturdy, durable construction
- Modification and custom units to fit your requirements

LIQUID COOLED

## LHP-SERIES

### FEATURES

- No load cooling to -25°C (25°C Fluid)
- Optional heating
- Temperature control, optional
- Low maintenance
- No compressor, fluorocarbons or filters
- Compact
- Lightweight
- Durable
- Reliable



# COLD PLATES

Air Cooled

Liquid Cooled

## AIR COOLED CPV

### AHP-1200CPV page 82

830-950 BTU/hr rating,  
15" x 11.3" x 6.5" size,  
5.38" X 13" cold plate surface,  
100-240 VAC



### AHP-1200DCP page 84

Dual temperature zone  
cold/hot plates  
18.5" X 15.1" X 6.5" size  
(2) 13.3" X 6.3" plate surface  
100-240 VAC



### AHP-301CPV page 86

225-265 BTU/hr rating,  
10" x 9.8" x 6" size,  
4.5" x 6" cold plate surface,  
100-240 VAC



### AHP-800MSP page 88

Variable stirring rate,  
19" x 9.3" x 10" size,  
1 Liter standard bottle,  
100-240 VAC



## AIR COOLED CP

### AHP-1200CP page 96

830-950 BTU/hr rating,  
15" x 7.3" x 5" size,  
5.38" X 13" cold plate surface,  
120, 240 VAC or 24 VDC operation



### AHP-300CP page 102

290-330 BTU/hr rating,  
10" X 5.4" X 4.1" size,  
4.5" X 6" cold plate surface  
12/24/48 VDC operation



### AHP-301CP page 100

225-265 BTU/hr rating,  
10" x 9.8" x 6" size,  
4.5" x 6" cold plate surface,  
120 or 240 VAC operation



### AHP-150CP page 102

140-160 BTU/hr rating,  
7" X 5" X 3.9" size,  
2" X 3.5" cold plate surface  
12/24 VDC operation



## LIQUID COOLED

### LHP-1700CP page 104

1360-1630 BTU/hr rating,  
19" x 8.7" x 5" size,  
6.00" x 12.88" cold plate  
120 or 240 VAC operation



### LHP-300CP page 108

280-335 BTU/hr rating,  
4" x 4" x 1.63" size,  
3.5" x 3.5" cold plate surface,  
12/24 VDC operation



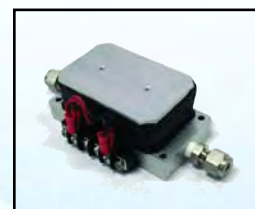
### LHP-1200CP page 106

887 BTU/hr rating,  
15" x 7.4" x 4" size,  
13.00" x 5.38" cold plate  
24 VDC operation



### LHP-150CP page 108

130-160 BTU/hr rating,  
4" x 2" x 1.63" size,  
2" x 3.2" cold plate surface,  
12 VDC operation



### LHP-800CP page 108

700-830 BTU/hr rating,  
6.6" x 6.6" x 1.75" size,  
6" x 6" cold plate surface,  
24 VDC operation



# AHP-1200CPV

# Versatile Cold/Hot Plate

Air Cooled  
Bench Top

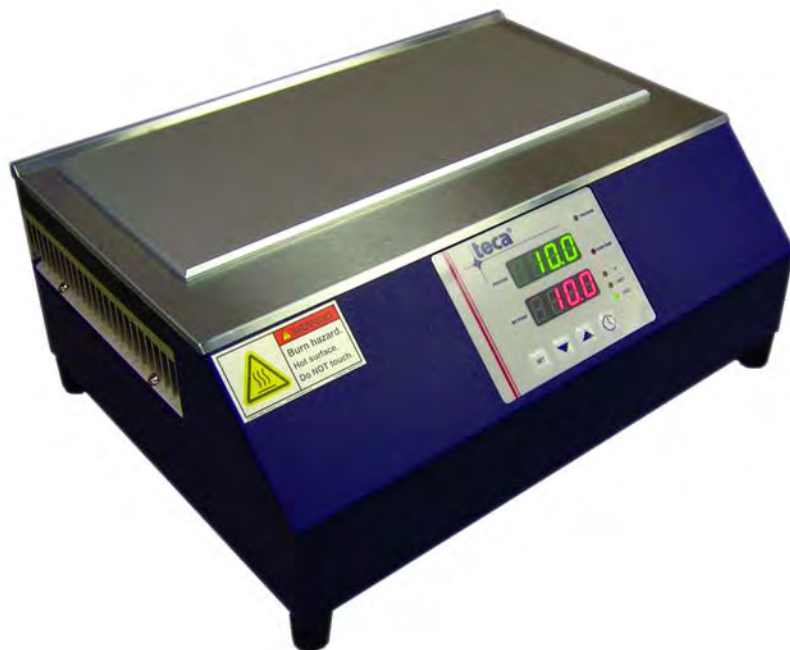
100-240 VAC Input

## FEATURES

- Precision machined cold plate surface
- Easy clean stainless steel top surface
- Cools and heats (TYP. -20 °C to 90 °C)
- 100-240 VAC universal input
- Low-profile design with ergonomic sloped front
- Variable fan speed for quieter operation
- Weighs only 25 lbs. (11.4 kg)
- Compact bench top unit, 11.2" X 15.1" footprint
- Virtually maintenance-free operation
- Painted Enameled stainless steel exterior housing
- Accessories for glassware (beaker/test tube) cooling

## CONTROL FEATURES

- Integral TC-4300 PID "tunable" temperature control
- One shot smart PID control tuning or Adaptive Smart Continuous Tuning
- EasyLog software for easy programming, tuning, charting and data acquisition
- Heating and Cooling
- Internal RTD sensor
- Remote Sensibility™ switchable exterior sensor
- Multi-segment ramp and soak programmable (4X8 or 2X16 or 1X32 segments)
- RS-232 communications



## SPECIFICATIONS

| MODEL                     | PART NUMBER | NOTES                      | COLD PLATE     | PERFORMANCE RATING BTU/HR | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|---------------------------|-------------|----------------------------|----------------|---------------------------|----------------------|---------------|------------------|---------------|----------------------|
| AHP-1200CPV 9-34EB-1-0A0  |             | Standard                   | Smooth Surface | 680-720                   | 100-240              | 2.5†          | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-35EB-1-0A0  |             | High capacity              | Smooth Surface | 780-840                   | 100-240              | 3.5†          | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-34E5-1-0A0  |             | Standard                   | Smooth Surface | 680-720                   | 24 VDC               | 9.0           | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-35E5-1-0A0  |             | High capacity              | Smooth Surface | 780-840                   | 24 VDC               | 17            | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-34EB-1-TAP  |             | Standard                   | Tap Pattern    | 680-720                   | 100-240              | 2.5†          | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-35EB-1-TAP  |             | High capacity              | Tap Pattern    | 780-840                   | 100-240              | 3.5†          | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-34E5-1-TAP  |             | Standard                   | Tap Pattern    | 680-720                   | 24 VDC               | 9.0           | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CPV 9-35E5-1-TAP  |             | High capacity              | Tap Pattern    | 780-840                   | 24 VDC               | 17            | 25 (11.4)        | TC-4300       | 0-50                 |
| AHP-1200CAS*9-35EB-1-CAS* |             | High capacity for Cascades | Tap Pattern    | 780-840                   | 100-240              | 4.0†          | 25 (11.4)        | TC-4300       | 0-50                 |

\* This part number is ready for use with a low temperature cascade option and includes CH-1200 hinged cover, CC-1200 rear panel for cascade power up and control, refer to pages 92 and 93 for information on cascades and other available options.

† Reflects the current draw @ 120 VAC, 60 Hz input

Many options and accessories available see pages 90-95

# AHP-1200CPV

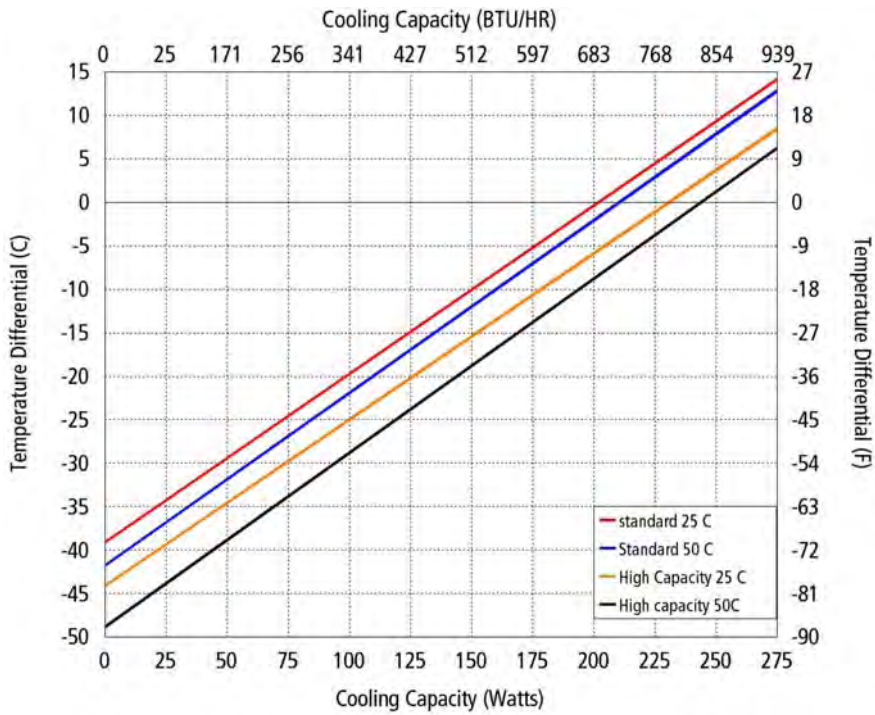
## ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

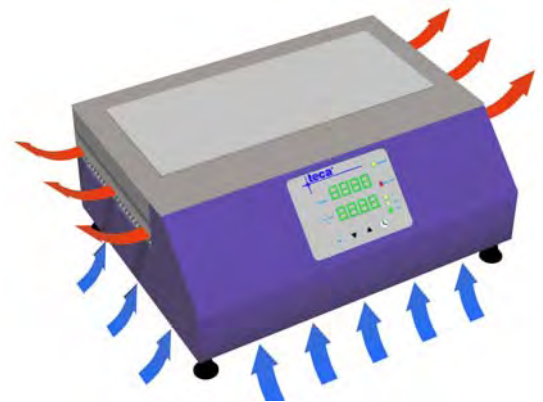
## COOLING CAPACITY

200 - 230 Watts @ 0 °C ΔT

## PERFORMANCE CURVE

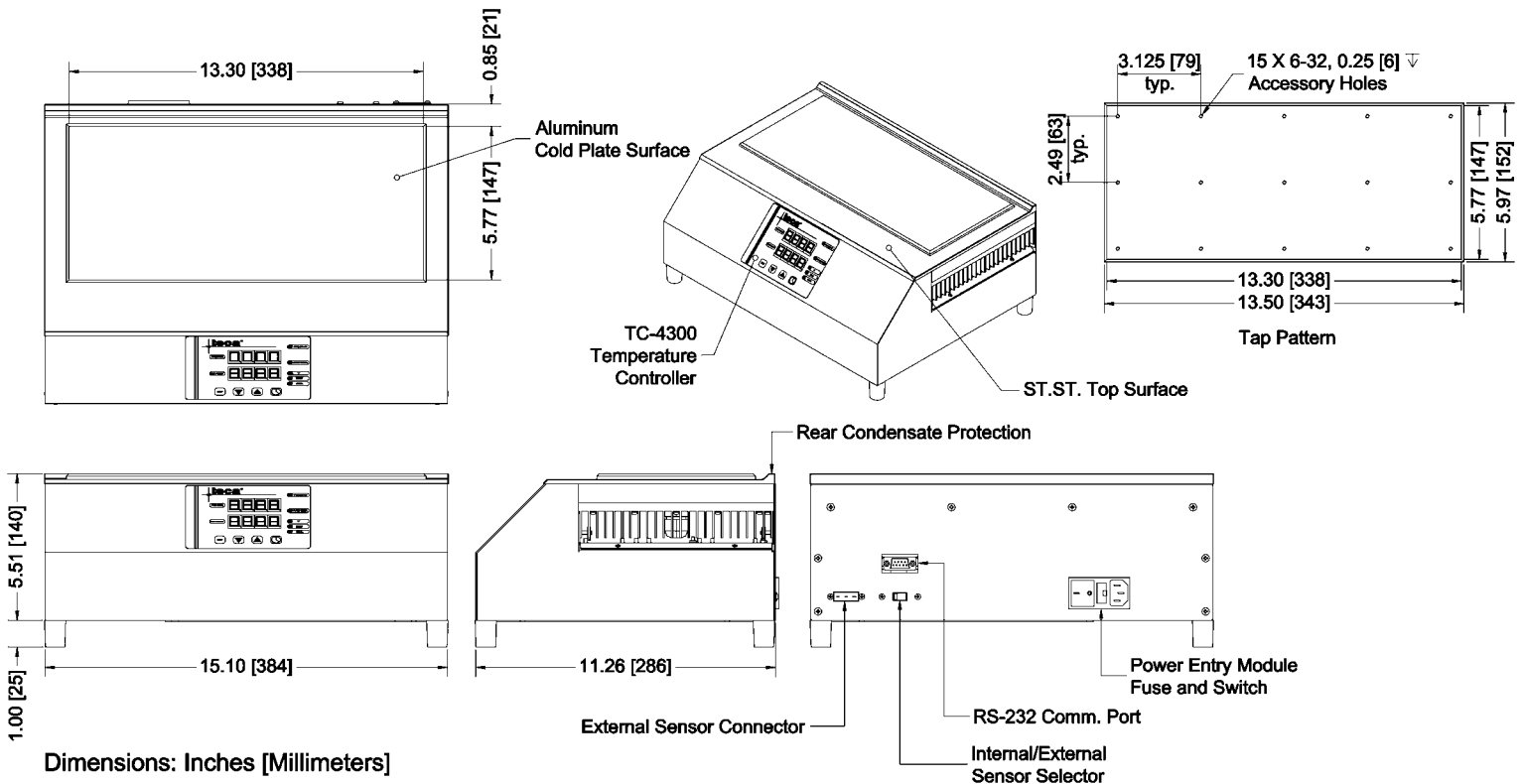


| Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$ |                    |                    |
|---|--------------------|--------------------|
| Ambient Temp  | 25°C               | 50°C               |
| Standard  | $y = .195x - 39.1$ | $y = .195x - 41.8$ |
| High capacity   | $y = .185x - 44.9$ | $y = .185x - 48.8$ |



Ambient Air Path

## DIMENSIONS



# AHP-1200DCP

# Dual Temperature Zone Plate

Air Cooled  
Bench Top

100-240 VAC Input

## FEATURES

- Cools and heats two plates independently
- 100-240 VAC universal input
- Low-profile design with ergonomic sloped front
- Variable speed fans for quiet operation
- Compact bench top unit, 18.5" X 15.1" footprint
- No compressor, fluorocarbons or filters.
- Virtually maintenance-free operation
- Painted Enameled stainless steel exterior housing
- Rubber feet
- Two precision machined cold plate surfaces, each 13.3" X 6.3"
- Large 13.5" x 12.6" overall plate area
- Adaptable to various surfaces/coverings



## APPLICATIONS

- Behavior Studies
- Habitat studies
- Pain Threshold Studies
- Temperature Range Studies
- Heat/Cold Sensitivity
- Temperature Differential Testing
- Long Term Temperature Exposure
- Heat/Cold Discrimination
- Heat/Cold Transient Studies
- Specimen Storage/Temperature Maintenance
- Histology Sample Preparation
- General Laboratory Cold Plate Use
- See pages 94-95 for accessories

## CONTROL FEATURES

- Independent TC-4300 PID "tunable" temperature controllers
- One shot smart PID control tuning or Adaptive Smart Continuous Tuning
- Heating and Cooling
- Internal RTD sensor
- Remote Sensibility™ switchable exterior sensor
- Multi-segment ramp and soak programmable
- RS-232 communications
- Software for programing, charting and data acquisition

## SPECIFICATIONS

| MODEL       | PART NUMBER  | NOTES     | PLATE CONFIGURATION | PERFORMANCE RATING BTU/HR | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|-------------|--------------|-----------|---------------------|---------------------------|----------------------|---------------|------------------|---------------|----------------------|
| AHP-1200DCP | 9-34EB-1-0A1 | Heat/Cool | Smooth Surface      | 670-800                   | 100-240              | 2.5-5.0       | 50 (22.7)        | TC-4300       | 0-40                 |
| AHP-1200DCP | 9-34EB-1-TA1 | Heat/Cool | Tap Pattern         | 670-800                   | 100-240              | 2.5-5.0       | 50 (22.7)        | TC-4300       | 0-40                 |

# AHP-1200DCP

## ENVIRONMENTS

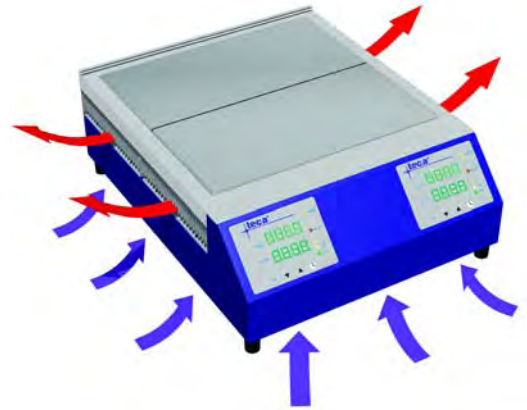
- Bench top
- Laboratory
- Industrial

## COOLING CAPACITY (individual plate)

200 - 240 Watts @ 0 °C ΔT

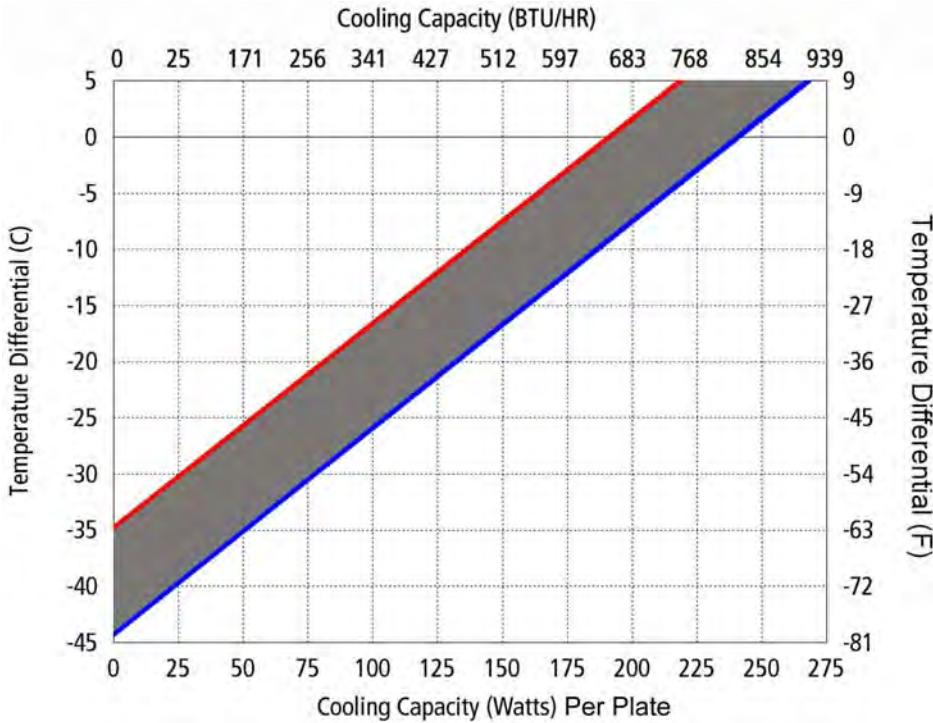
## COOLING CAPACITY (combined)

400 - 480 Watts @ 0 °C ΔT



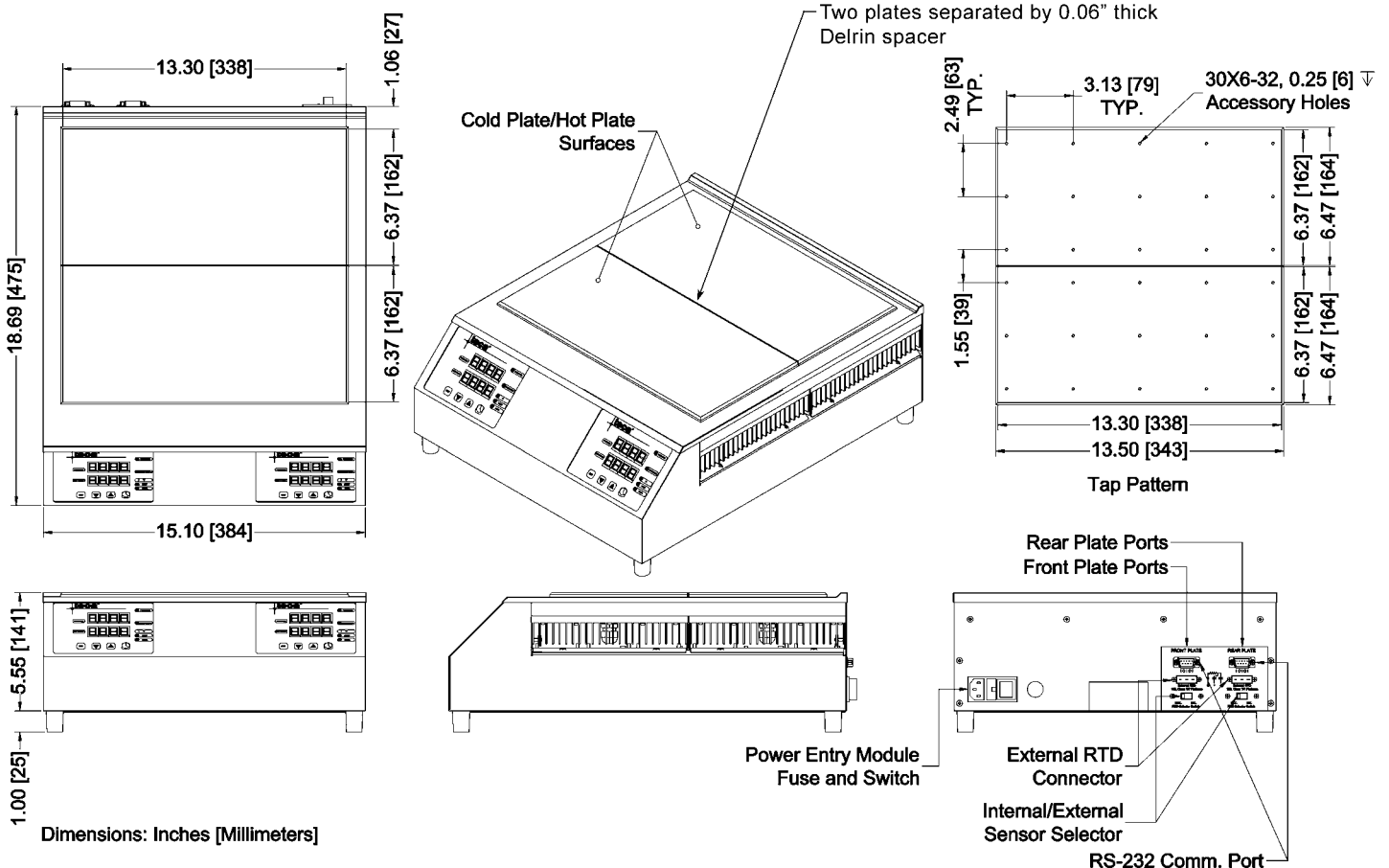
Ambient Air Path

## PERFORMANCE CURVE



Performance varies with cold plate temperature differential.  
 Performance curve is for one cold plate at an ambient of 25 °C.  
 Performance of one cold plate will vary with the temperature of the other cold plate.

## DIMENSIONS



# AHP-301CPV

# Versatile Cold/Hot Plate

Air Cooled  
Bench Top

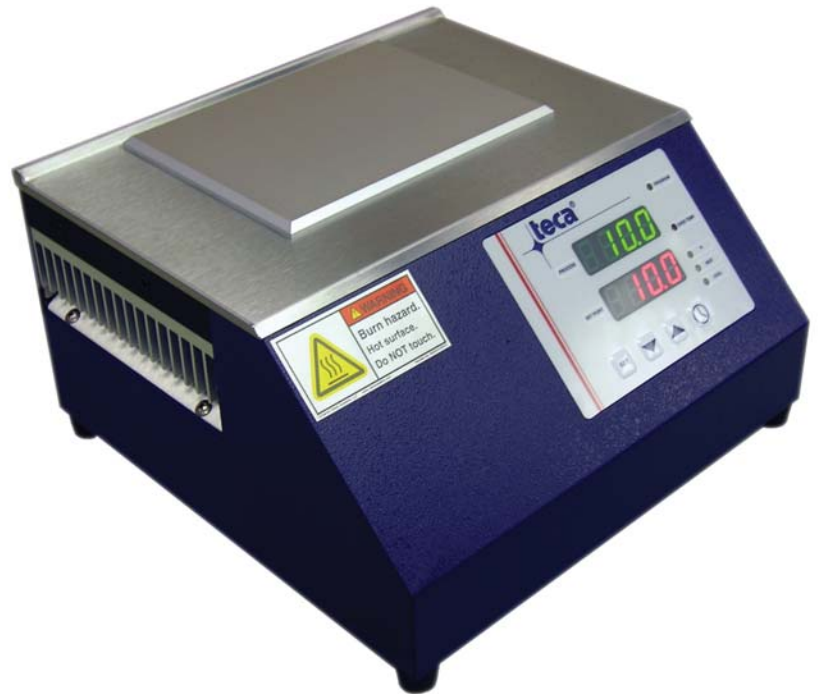
100-240 VAC Input

## FEATURES

- Precision machined cold plate surface
- Easy clean stainless steel top surface
- Cools and heats (TYP. -20 °C to 90 °C)
- 100-240 VAC universal input
- Low-profile design with ergonomic sloped front
- Weighs only 13 lbs. (5.9 kg)
- Compact bench top unit, 9.8" X 10.1" footprint
- No compressor, fluorocarbons or filters.
- Virtually maintenance-free operation

## CONTROL FEATURES

- Integral TC-4300 PID "tunable" temperature control
- One shot smart PID control tuning or Adaptive Smart Continuous Tuning
- EasyLog software for easy programming, tuning, charting and data acquisition
- Heating and Cooling
- Internal RTD sensor
- Remote Sensibility™ switchable exterior sensor
- Multi-segment ramp and soak programmable (4X8 or 2X16 or 1X32 segments)
- RS-232 communications



## SPECIFICATIONS

| MODEL      | PART NUMBER  | COLD PLATE     | PERFORMANCE RATING BTU/HR | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|------------|--------------|----------------|---------------------------|----------------------|---------------|------------------|---------------|----------------------|
| AHP-301CPV | 9-70EB-1-0A0 | Smooth Surface | 260-280                   | 100-240              | 2.0*          | 13 (5.9)         | TC-4300       | 0-45                 |
| AHP-301CPV | 9-70E5-1-0A0 | Smooth Surface | 260-280                   | 24 VDC               | 7.0           | 13 (5.9)         | TC-4300       | 0-45                 |
| AHP-301CPV | 9-70EB-1-TAP | Tap Pattern    | 260-280                   | 100-240              | 2.0*          | 13 (5.9)         | TC-4300       | 0-45                 |
| AHP-301CPV | 9-70E5-1-TAP | Tap Pattern    | 260-280                   | 24 VDC               | 7.0           | 13 (5.9)         | TC-4300       | 0-45                 |

\* Reflects the current draw @ 120 VAC, 60 Hz input  
Many options and accessories available see pages 90-95

# AHP-301CPV

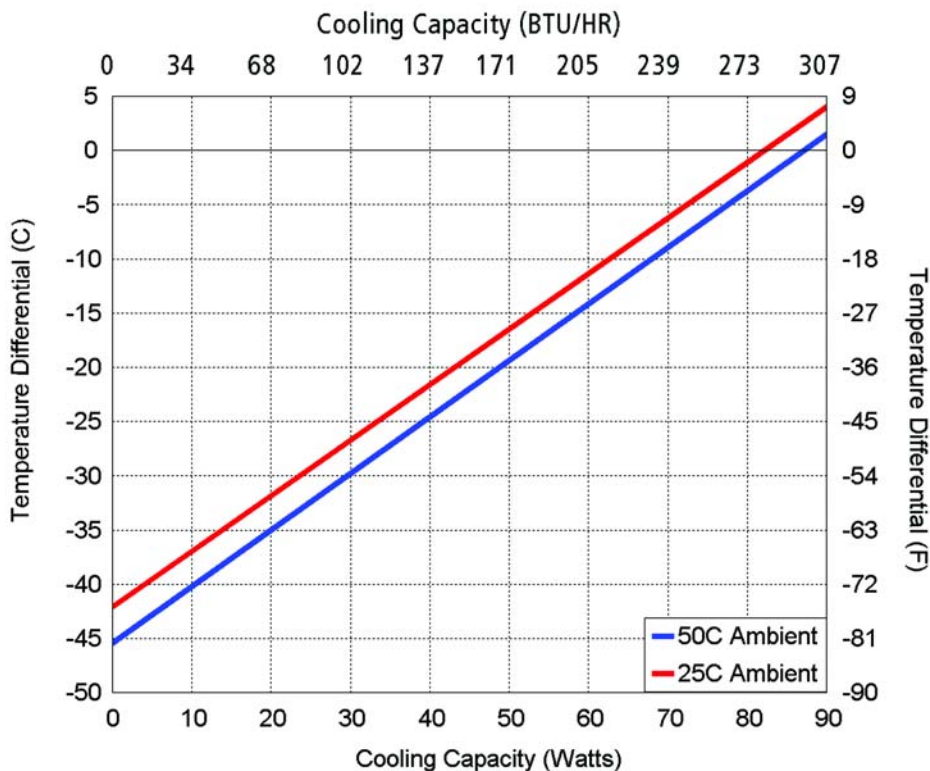
## ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

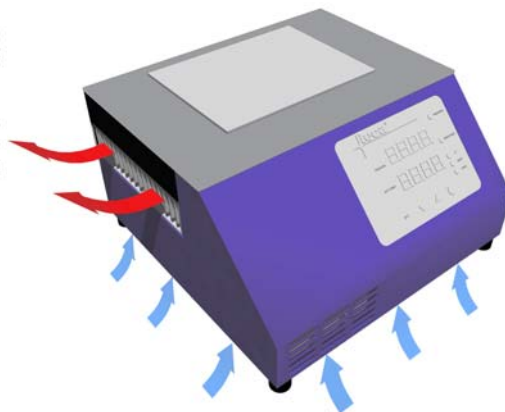
## COOLING CAPACITY

82 Watts @ 0 °C ΔT

## PERFORMANCE CURVE

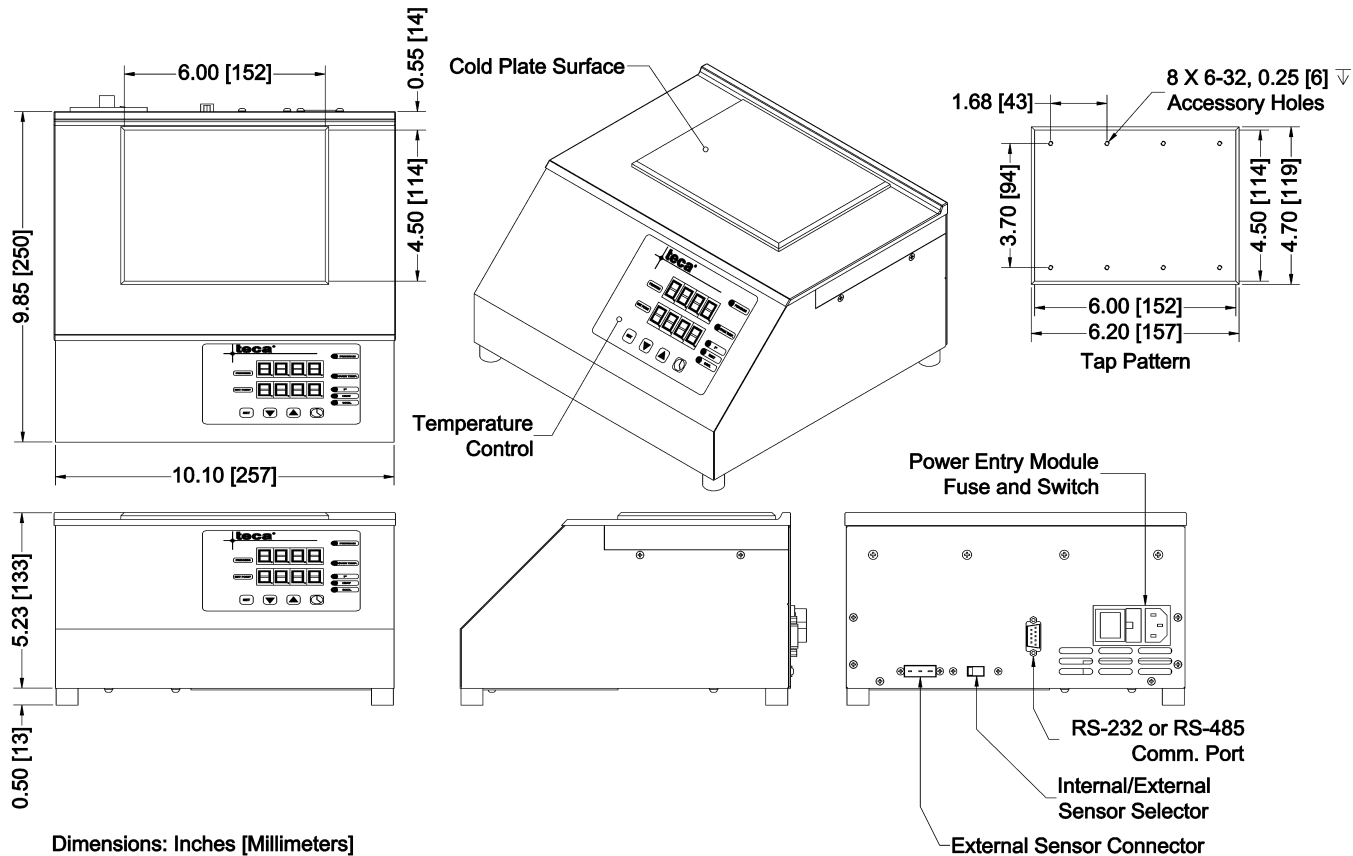


| Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$ |                   |                   |
|---|-------------------|-------------------|
| Ambient Temp  | 25°C              | 50°C              |
| Cold Plate  | $y = .51x - 42.1$ | $y = .51x - 45.4$ |



Ambient Air Path

## DIMENSIONS





# AHP-800MSP

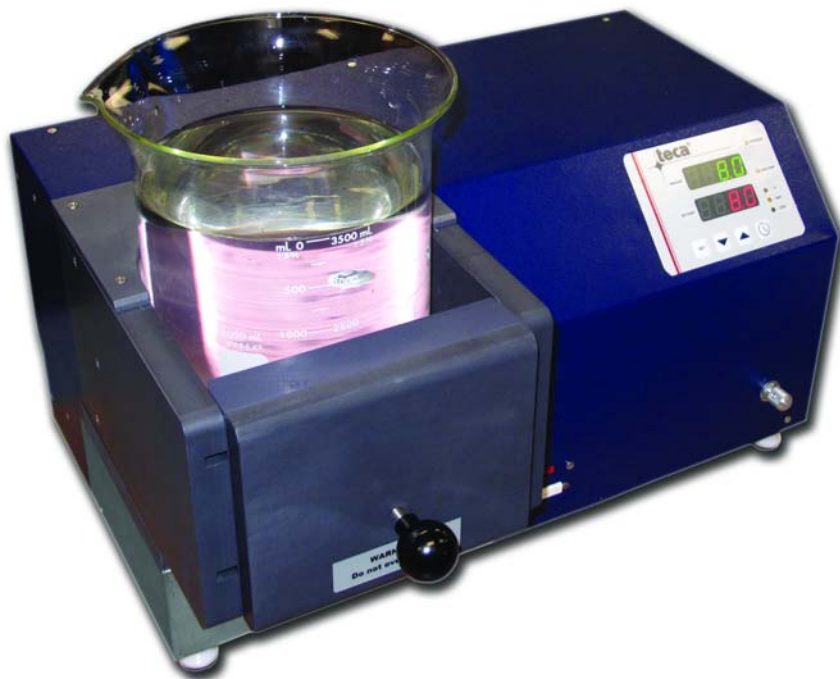
# Magnetic Stirring Cold/Hot Plate

Air Cooled  
Bench Top

100-240 VAC Input

## FEATURES

- Heating and cooling
- Unique high-performance side mounting cold plate for added cooling and uniform temperatures
- Magnetic drive for stir bars from underneath the bottle
- Magnetic stir offers 5 speed settings
- Standard and custom sleeves
- Made for use with Corning Pyrex<sup>®</sup> brand 1000 beakers or equivalent size beakers or bottles
- 100-240 VAC universal, Integral power supply
- North American Standard power input cord set
- Variable speed fan for reduced noise
- Weighs only 38 lbs. (17.3 kg)
- Compact bench-top design
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Painted stainless steel exterior housing



## INCLUDES

- Integral PID "tunable" temperature control
- One shot smart PID control tuning or Adaptive Smart Continuous Tuning
- Internal RTD sensor
- External RTD sensor included
- Remote Sensibility<sup>™</sup> switchable exterior RTD sensor
- Multi-segment ramp and soak programs
- RS-232 communications
- i-tools software for easy programming and control tweaking
- Standard software for charting and data acquisition
- Stock bottle block for 4 liter beaker (6.25" diameter) Corning Pyrex<sup>®</sup> brand 1000 # S-34502-15

## APPLICATIONS

Laboratory or industrial environments. Testing of specimens, drugs and industrial chemicals. Process testing. Quality control.

## OPTIONAL SLEEVES

The AHP-800MSP has optional sleeves that make it adaptable to different size bottles and beakers. Install different sleeves for different diameter vessels.

| PART NUMBER | CORNING PART NUMBER | VOLUME (Liter) | SIZE (Inches) H X OD |
|-------------|---------------------|----------------|----------------------|
| SLV-2000    | S-34502-13          | 2              | 7 1/2 X 5 1/8        |
| SLV-1500    | S-34502-12          | 1.5            | 6 1/2 X 4 3/4        |
| SLV-1000    | S-34502-11          | 1              | 6 1/4 X 4 1/4        |
| SLV-800     | S-34502-10          | 0.8            | 5 1/4 X 3 7/8        |
| SLV-600     | S-34502-09          | 0.6            | 4 7/8 X 3 1/2        |

## SPECIFICATIONS

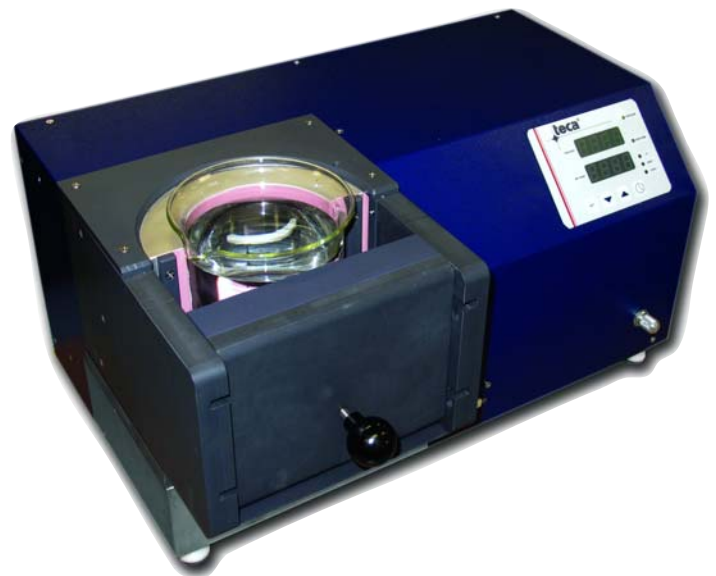
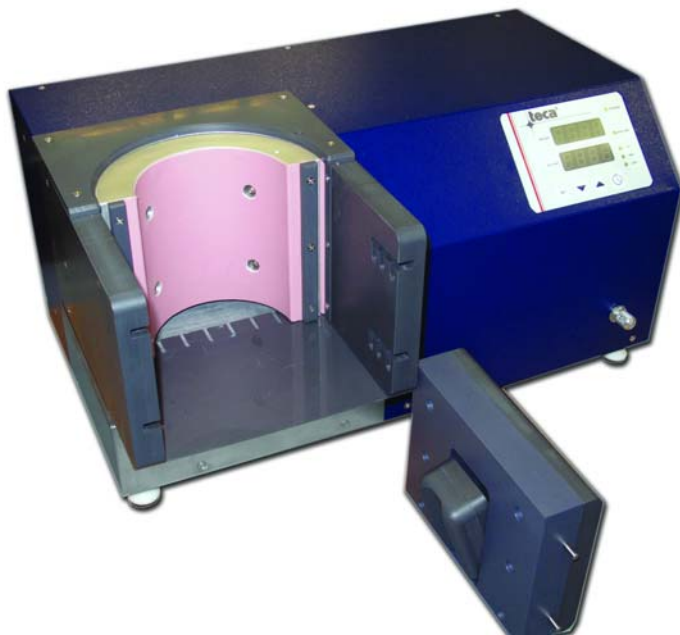
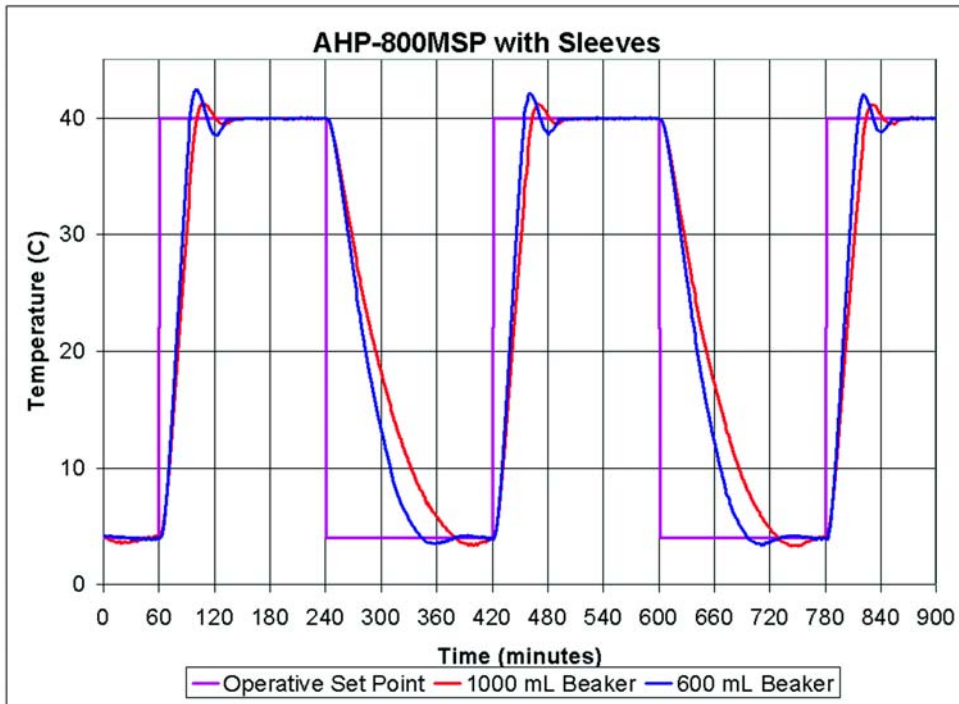
| MODEL      | PART NUMBER  | NOTES     | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|------------|--------------|-----------|----------------------|---------------|------------------|---------------|----------------------|
| AHP-800MSP | 9-50EB-1-003 | Heat/Cool | 100-240              | 1.7-4.8       | 38 (17.3)        | TC-4300       | 0-45                 |

# AHP-800MSP

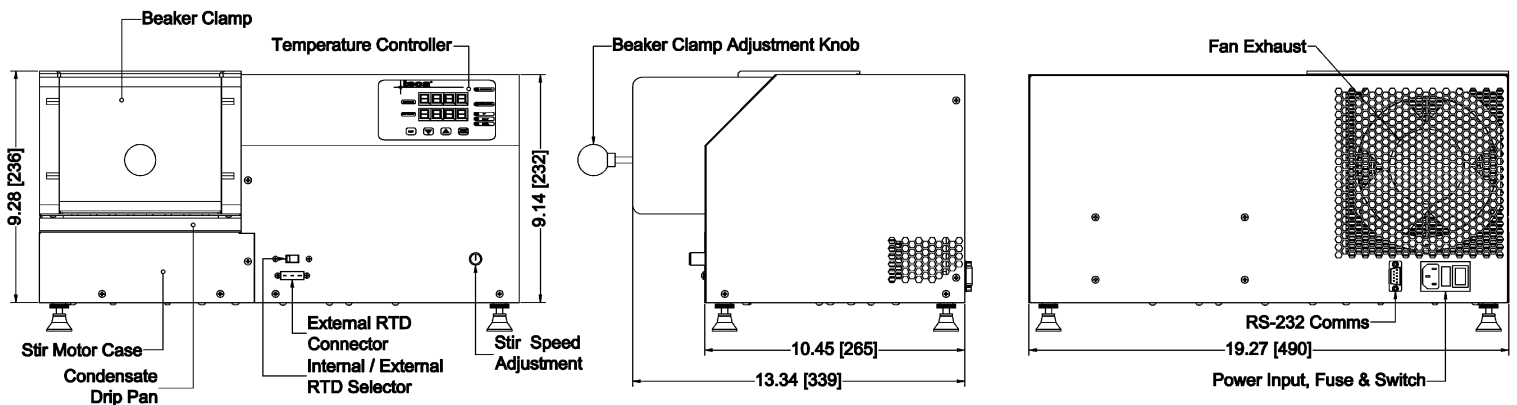
## ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

## PERFORMANCE CURVE



## DIMENSIONS



Dimensions: Inches [Millimeters]

# CPV Thermal Gradient Bar

Thermal Gradient Bar

## OVERVIEW

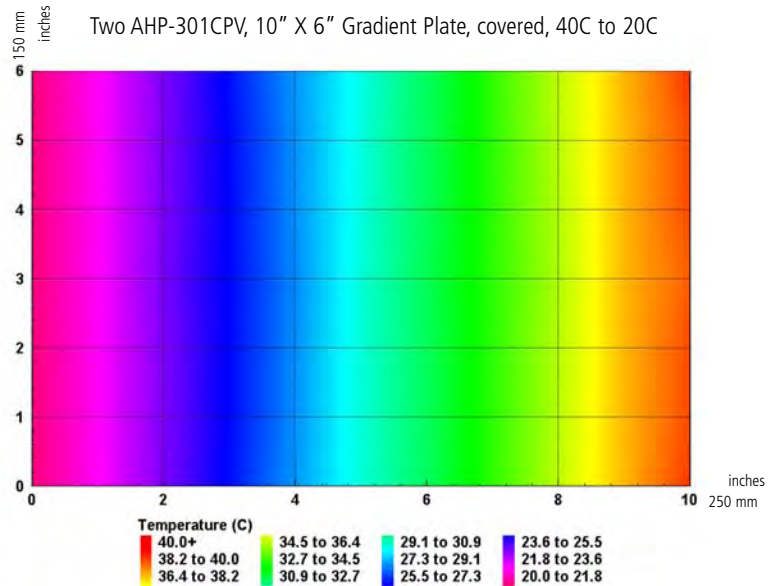
TECA's Gradient Bar options expand the use of the CPV line of Cold Plates. With a TECA model CPV cold plate at each end the gradient bar has programmable gradient areas with near linear gradients between the two ends and near uniform temperatures along the width of the bar. The temperature at each end of the gradient area can be programmed to a single set point or with a ramp/step and soak profile creating constant, expanding, contracting or moving gradients. Set the gradient profile to be large for initial observations then adjust the end set points to zoom in on a temperature range of interest. The temperature at the end of the gradient area is measured from underneath the plate at approximately .05 from the surface leaving the top gradient area clean and smooth. Optional external surface sensors can be used to change the size of the gradient area.

## FEATURES

- Near Linear Temperature Gradient differentials from 2C to 30C
- Independent Temperature Set points
- Includes two bottom mounted 3 wire RTD sensors
- Programmable set points, step or ramp changes
- Fixed or adjustable gradient areas
- Gradients above and below ambient
- Bench top
- Air Cooled
- Anodized aluminum surface
- Used with model AHP-301CPV or AHP-1200CPV units
- Custom sizes available
- Custom Acrylic covers and barriers available
- End Temperatures from -10C (minimal  $\Delta T$ ) to 70C ( $\Delta T$  of 45C)

## TEMPERATURE STUDY APPLICATIONS

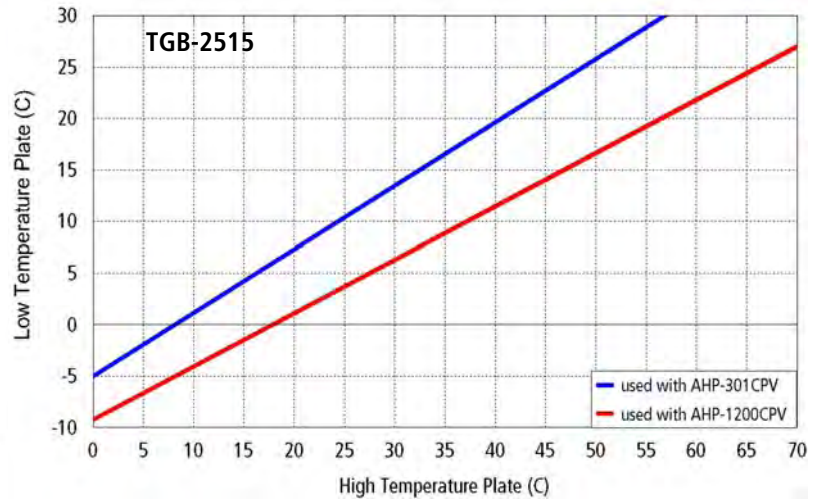
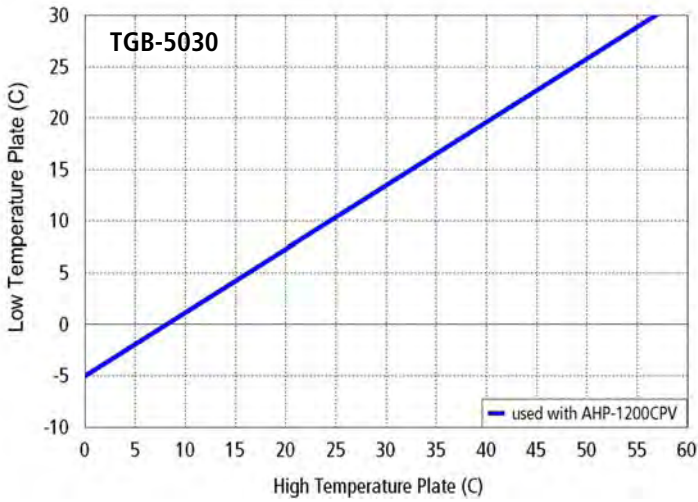
- Insects
- Mammals
- Micro-organisms
- Plants
- Chemicals
- Incubation
- At rest
- Feeding
- Preference
- Soil Biochemistry
- Root Growth
- Seed Germination
- Film forming
- Paints
- Adhesives
- Melting Points
- More



## SPECIFICATIONS

| MODEL    | GRADIENT PLATE SIZE (L X W X H) mm | GRADIENT AREA | FINISH        | USE WITH<br>2 Each         | EMBEDDED<br>SENSOR |
|----------|------------------------------------|---------------|---------------|----------------------------|--------------------|
| TGB-2515 | 558 X 150 X 25                     | 250 X 150     | Clear anodize | AHP-301CPV or AHP-1200 CPV | 3 WIRE RTD         |
| TGB-5030 | 914 X 300 X 25                     | 500 X 300     | Clear anodize | AHP-1200CPV                | 3 WIRE RTD         |

## TEMPERATURE RANGE CURVES



### How to use the curves to help determine the maximum gradient delta T.

On the X-axis find the temperature you want to hold on one end of the gradient.

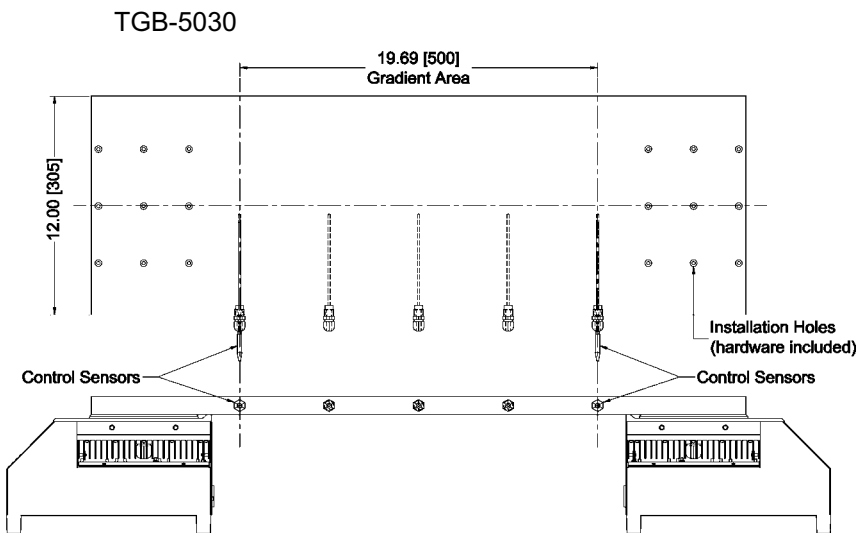
Extend a vertical line up until you meet the characteristic line of your preferred gradient plate/CPV combination.

Extend a horizontal line to the Y-Axis to find the temperature you can hold on the other end of the gradient plate.

The difference between the two temperatures is the maximum delta T you can expect across the gradient plate under your defined conditions.

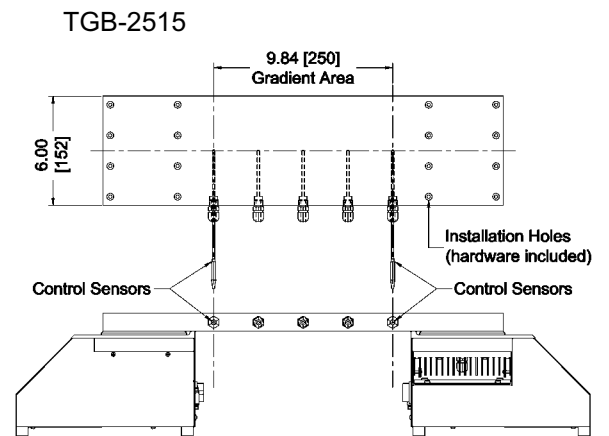
The curves shown, are test results in a 20 C ambient non condensing and the gradient area covered by an acrylic cover.

## DIMENSIONS



Gradient plate shown with two AHP-1200CPV

Dimensions: Inches [Millimeters]



Gradient plate shown with two AHP-301CPV

# CPV Cascades

Cascades Low Temperature

## LOW TEMPERATURE CASCADES

One thermoelectric stacked on top of another with the goal of increasing the maximum temperature differential is a "cascade". These cascade assemblies are mounted to the model **AHP-1200CAS Part # 9-35EB-1-CAS** (see page 76) cold plate to create 2 and 3 stage cascades. The performance curves shown are actual tests run under very well insulated conditions. The performance will vary with the degree of insulation, with the amount of the active load and with the ambient temperature.

## INCLUDED WITH AHP-1200CAS

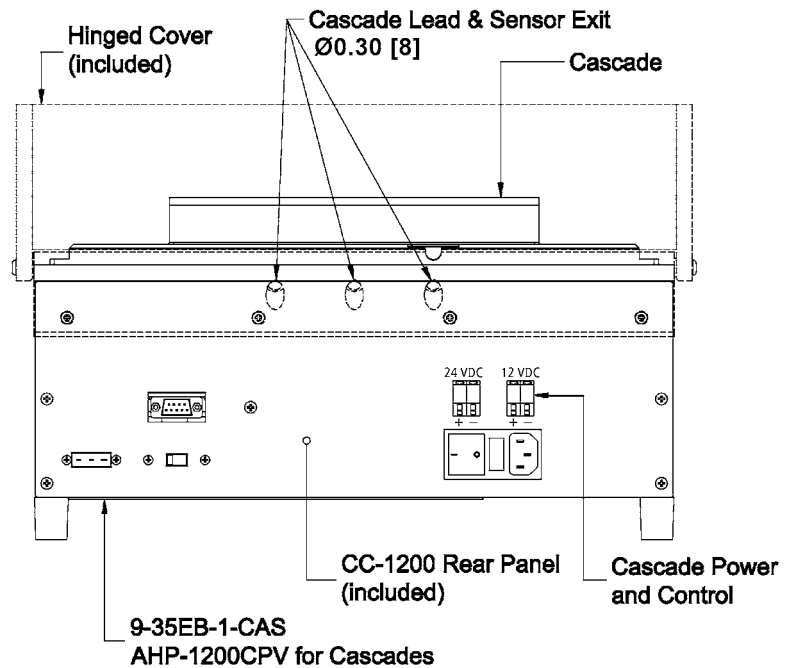
- All the features of AHP-1200CPV series (see page 76)
- Tap pattern for installation of cascades
- Rear panel controlled power output for cascades
- Clear acrylic hinged cover

## INCLUDED WITH CASCADES

- Mounting hardware
- Power input leads
- Thermally conductive substrate pad
- Precision machined cold plate surfaces
- Embedded RTD sensor and connector for use with **AHP-1200CAS**



AHP-1200CAS with CCP-31 3 Stage Cascade



AHP-1200CAS with CCP-21 rear view

## SPECIFICATIONS AHP-300CP

| PART NUMBER | USE WITH    | MAX DELTA T AT 25°C AMB. °C | TOP SURFACE AREA inches | VOLTAGE VDC | CURRENT AMPS | TEMP. CONTROL | OPERATING AMBIENT °C | STAGES |
|-------------|-------------|-----------------------------|-------------------------|-------------|--------------|---------------|----------------------|--------|
| CCP-22      | AHP-1200CAS | - 58                        | 8.75 X 4.5              | 24          | 4.6          | AHP-1200CAS   | -10/+70              | 2      |
| CCP-21      | AHP-1200CAS | - 68                        | 6 X 3                   | 24          | 2.5          | AHP-1200CAS   | -10/+70              | 2      |
| CCP-31      | AHP-1200CAS | - 76                        | 6 X 3                   | 24 & 12     | 4.6 & 1.8    | AHP-1200CAS   | -10/+70              | 3      |

# CPV Cascades

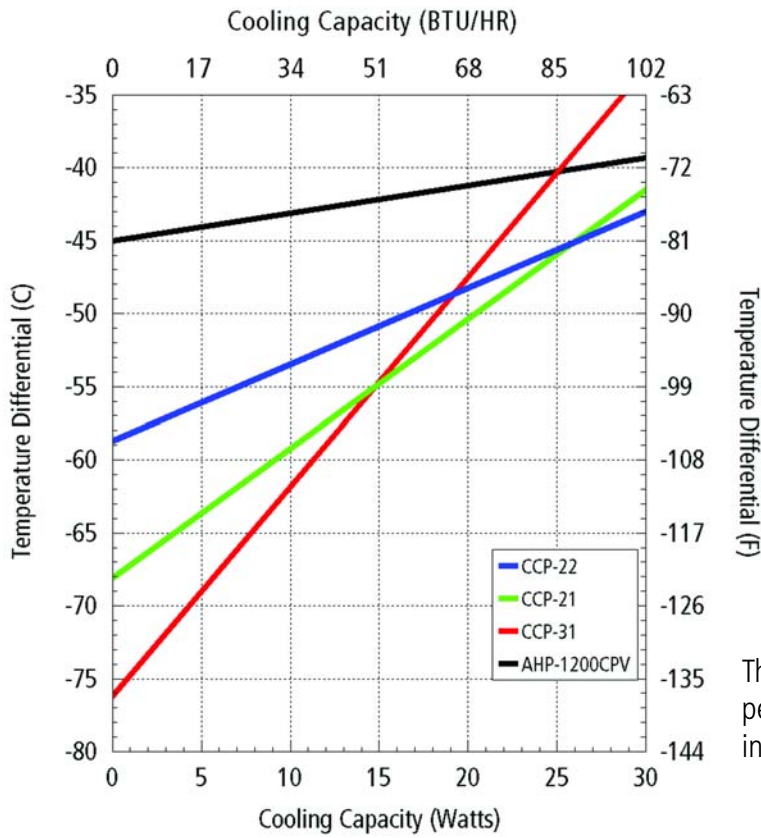
## ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

## Maximum $\Delta T$

- CCP-22: -58 °C
- CCP-21: -68 °C
- CCP-31: -76 °C

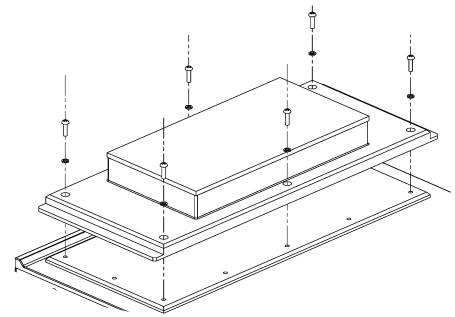
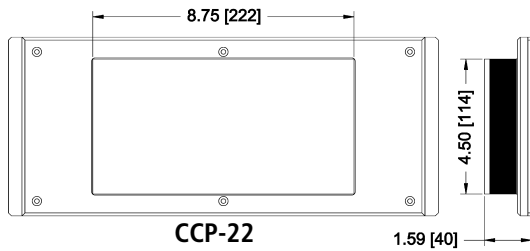
## PERFORMANCE CURVE



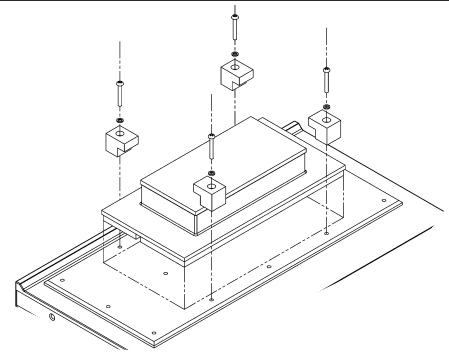
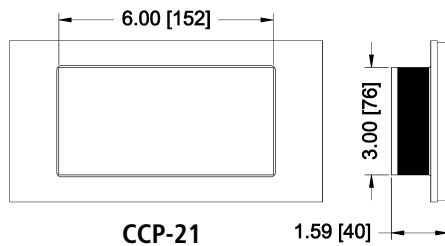
This performance curves represent tests performed in 25 °C ambient with well insulated cold plate surface.

## DIMENSIONS

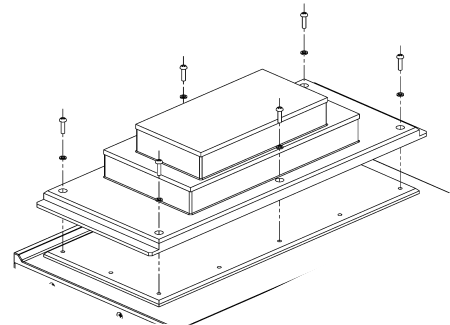
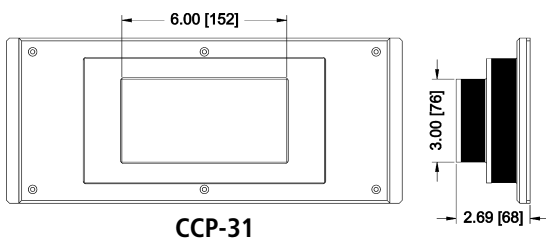
### TWO STAGE - LARGE PLATE



### TWO STAGE - SMALL PLATE



### THREE STAGE



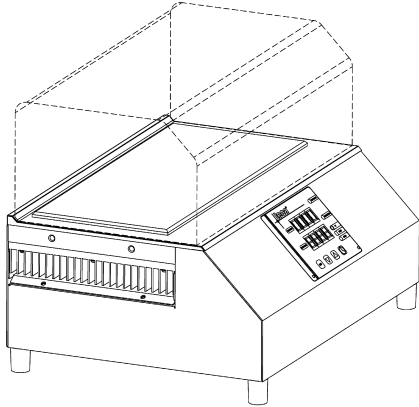
Dimensions: Inches [Millimeters]

# CPV Accessories

Covers and Barriers

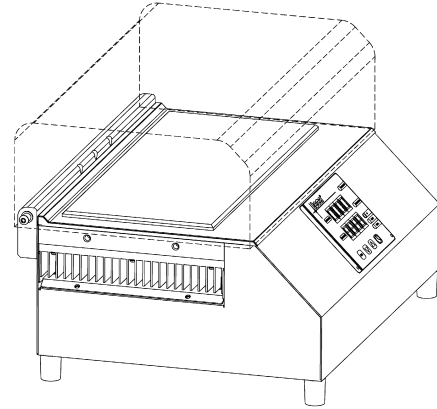
## COVERS AND BARRIERS

Clear acrylic covers for AHP-301CPV and AHP-1200CPV



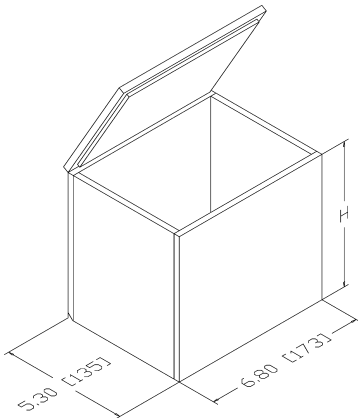
- C-301** 10[254] X 6.5[165] X 4[102]    **CN-301** cover for ACP-301  
**C-1200** 15[381] X 8[203] X 5[127]    **CN-1200** cover for ACP-1200

Hinged clear acrylic covers for AHP-301CPV and AHP-1200CPV

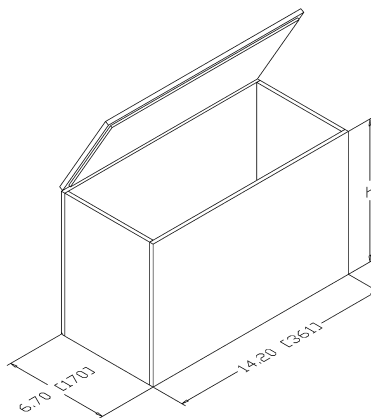


- CH-301** 11[279] X 7.4[188] X 4[102]    **CHN-301** cover for ACP-301  
**CH-1200** 16[406] X 9.3[236] X 5[127]    **CHN-1200** cover for ACP-1200

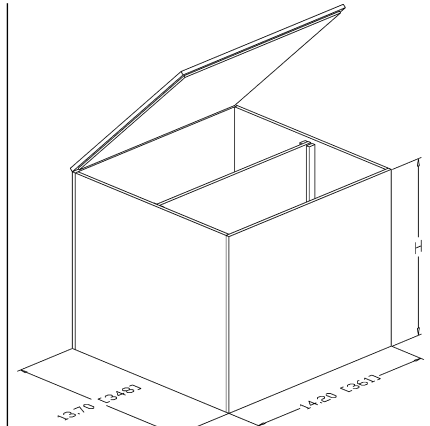
Clear acrylic barriers for AHP-301CPV and AHP-1200CPV and AHP-1200DCP cold plates. Includes unhinged cover.



**BH-301** H = Height in inches



**BH-1200** H = Height in inches



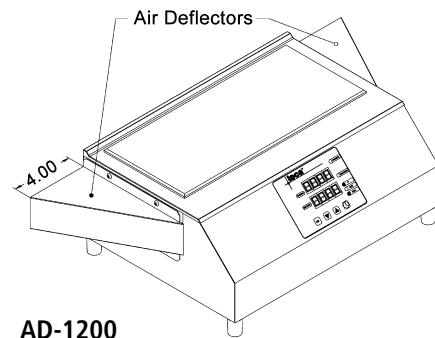
**BH-1200DCP** H = Height in inches

## PYREX PLATES

Borosilicate substrate used to protect cold plate surface from sharp instruments. These plates, GP-1200 and GP-301, can be frozen in place on the cold plates.

| Part Number | Size Inches [Millimeters]      | Used With      |
|-------------|--------------------------------|----------------|
| GP-1200     | 13.3[338] X 5.8[147] X 0.12[3] | AHP-1200CPV    |
| GP-301      | 6.0[152] X 4.5[114] X 0.12[3]  | AHP-301CPV     |
| GP-22       | 8.75[222] X 4.5[114] X 0.12[3] | CCP-22         |
| GP-31       | 6.0[152] X 3.0[76] X 0.12[3]   | CCP-21, CCP-31 |

## AIR DEFLECTOR



**AD-1200**  
Fully reversible air deflector for AHP-1200CPV exhaust.

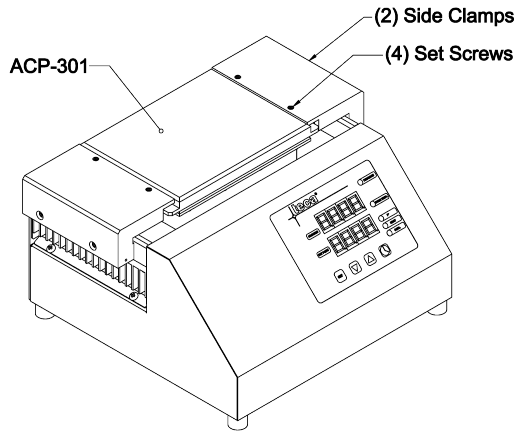
## INSULATION

Handy sized and easily cut pieces of closed cell polyethylene insulation.

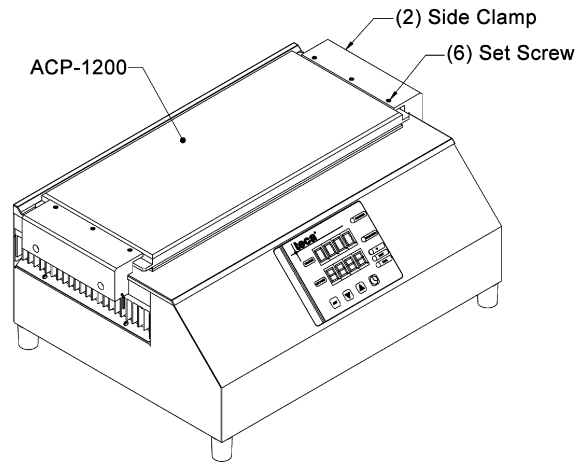
- INS-03** 15" X 2" X 8" Use with AHP-1200CPV  
**INS-04** 10" X 2" X 6" Use with AHP-301CPV

## ACCESSORY PLATES

Clear anodized aluminum Feature Plates are clamped to CPV cold plates from the side. They come with the side clamps and are blank as shown below. Modify them to your needs, adding taps, grooves and other features. Swap different plates for different jobs. Use them as fixture plates.



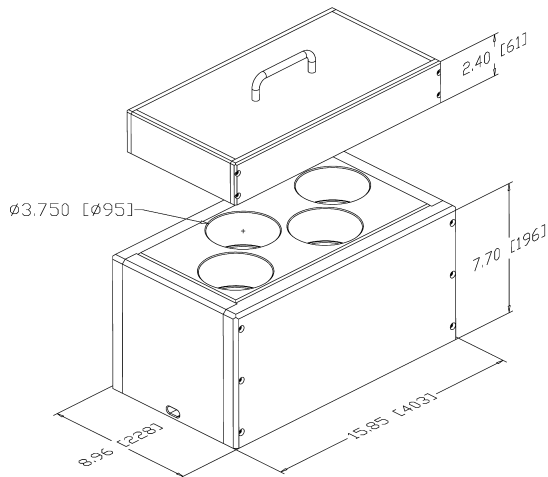
**ACP-301** 6.2[157] X 4.7[119] Surface  
Contact TECA for more details



**ACP-1200** 13.3[338] X 5.77[147] Surface  
Contact TECA for more details

## COLD WELL

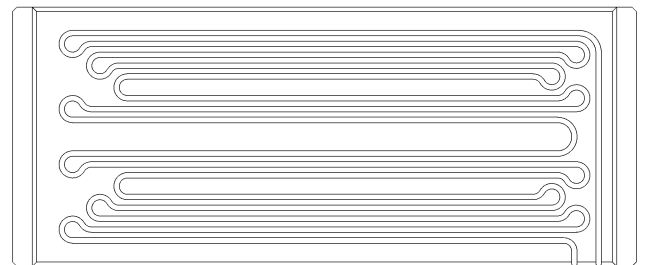
Used with 1000 mL Boston Round bottles.



**CWB-01** Layered Aluminum cold well block for four 1 Liter bottles.  
For other configurations consult factory

## TUBE CHILLER

A Tube Chiller Plate has channels designed for specific size flexible tubing. When a fluid flows through the tubing it can be heated or cooled without introducing any type of contaminants. Temperature differentials vary with fluid flow rate and specific heat. On site evaluations recommended.



**TC-1** Accessory plate with channels for 0.125" dia tubing. Other tubing diameters available.

**TCC-1** Hinged cover for TC-1

## MISC. ACCESSORIES

### RTD SENSOR

- RTD-PROBE** 100 Ω, 3 wire, platinum RTD 6" long, 1/8" diameter
- RTD-RING** 100 Ω, 3 wire, platinum RTD surface mount

### CONVERTER

- C-USB** USB to RS-232 converter "includes adapter, cable and software"

### CABLE

- C-RS232** RS-232 Cable, DB9 Male to DB9 Female 10' long

See other accessories on page 130



# AHP-1200CP Cold Plate

Air Cooled  
Flush Mount  
NEMA-12

General Purpose 120 VAC, 240 VAC Input

## FEATURES

- Direct contact cooling as much as 48 °C below room temperature
- Weighs only 19 lbs. (8.6 kg)
- Bench top or enclosure mounting
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts in any orientation



## INCLUDES

- Integral power supply (120 VAC input)
- Cold plate mounting taps
- Rubber feet
- Power input cord

## SPECIFICATIONS

| MODEL        | PART NUMBER  | NOTES     | PERFORMANCE RATING BTU/HR | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|--------------|--------------|-----------|---------------------------|----------------------|---------------|------------------|---------------|----------------------|
| AHP-1200CP   | 1-3090-0-000 | Cool only | 830-950                   | 120                  | 4.0           | 18(8.2)          | None          | -15/+60              |
| AHP-1200CP   | 1-3050-0-000 | Cool only | 830-950                   | 120                  | 4.0           | 18(8.2)          | EXT*          | -15/+60              |
| AHP-1200CPHC | 1-3050-1-000 | Heat/Cool | 830-950                   | 120                  | 4.0           | 18(8.2)          | EXT*          | -15/+60              |
| AHP-1202CP   | 1-3092-0-000 | Cool only | 830-950                   | 240                  | 2.5           | 23(10.5)         | None          | -15/+60              |
| AHP-1202CP   | 1-3052-0-000 | Cool only | 830-950                   | 240                  | 2.5           | 23(10.5)         | EXT*          | -15/+60              |
| AHP-1202CPHC | 1-3052-1-000 | Heat/Cool | 830-950                   | 240                  | 2.5           | 23(10.5)         | EXT*          | -15/+60              |

\* Unit is set for 5-32 VDC external control signal

# AHP-1200CP

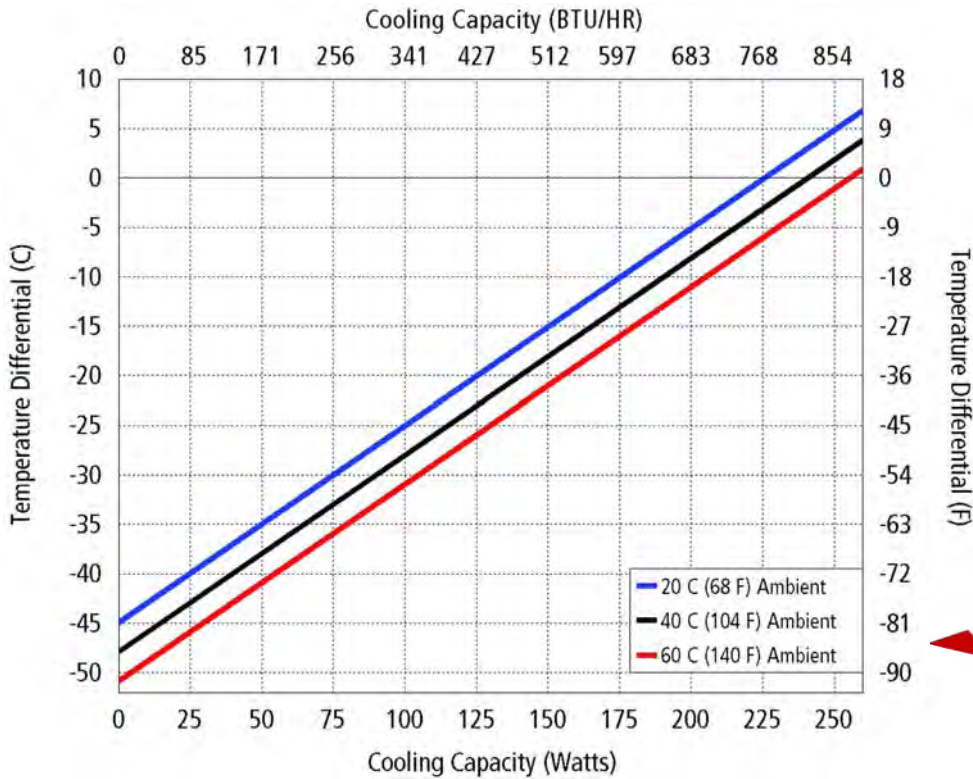
## ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

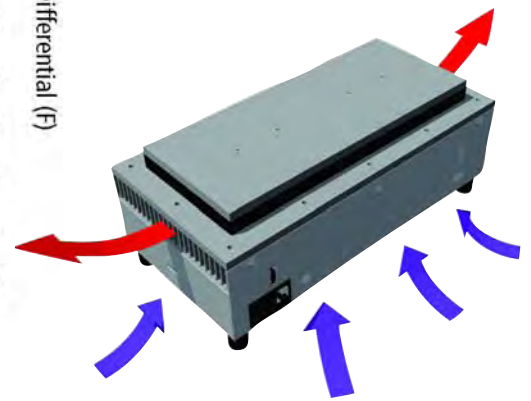
## COOLING CAPACITY

225 Watts @ 0 °C ΔT

## PERFORMANCE CURVE

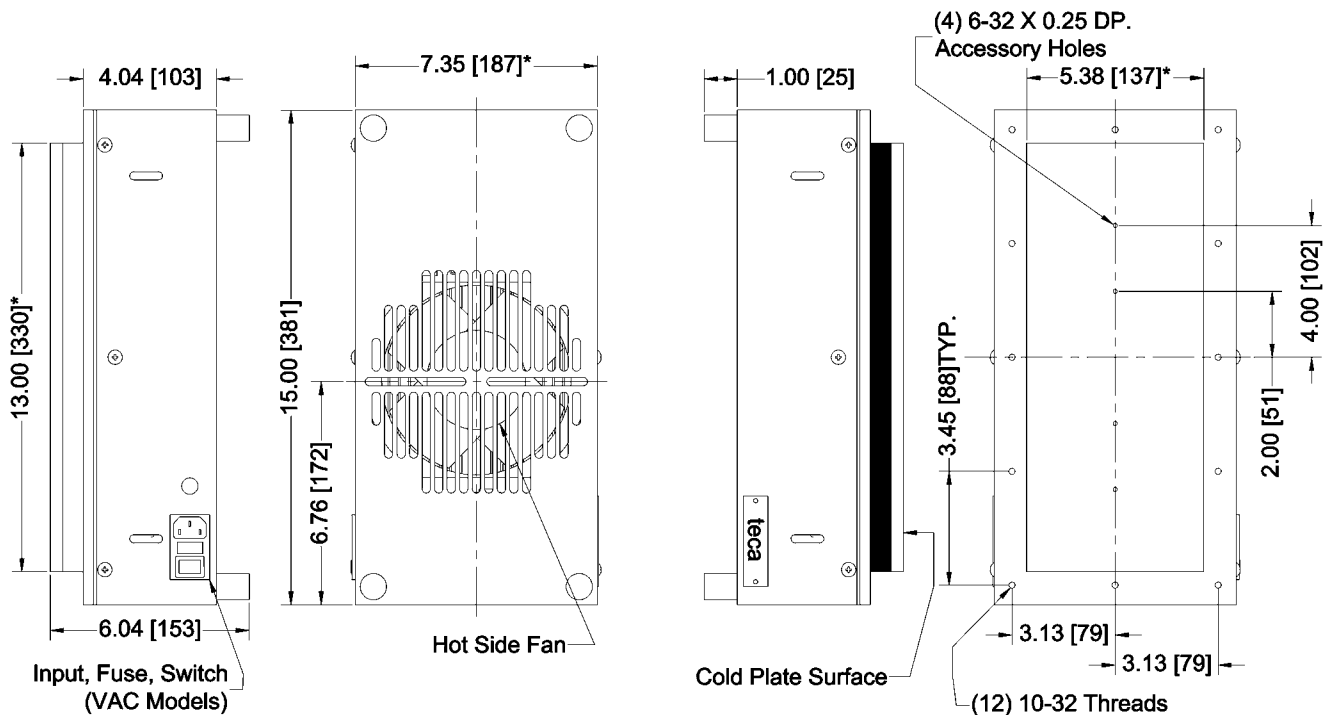


| Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$ |                    |                    |                    |
|---|--------------------|--------------------|--------------------|
| Ambient Temp  | 20°C               | 40°C               | 60°C               |
| Cold Plate  | $y = .199x - 44.9$ | $y = .199x - 47.9$ | $y = .199x - 50.8$ |



Ambient Air Path

## DIMENSIONS



\* Dimension does not include hardware and sealant.  
Dimension: Inches [Millimeters]

# AHP-1200CP Cold Plate

Air Cooled  
Flush Mount  
NEMA-12

General purpose 24 VDC input

## FEATURES

- Direct contact cooling as much as 48 °C below room temperature
- Weighs only 19 lbs. (8.6 kg)
- Mount thru bench top or enclosure wall
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts in any orientation



## INCLUDES

- Cold plate accessory tapped holes
- Cold plate mounting taps
- Rubber feet
- Power input leads

## SPECIFICATIONS

| MODEL        | PART NUMBER  | NOTES     | PERFORMANCE RATING | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL * | OPERATING AMBIENT °C |
|--------------|--------------|-----------|--------------------|-------------|---------------|------------------|-----------------|----------------------|
| AHP-1200CP   | 1-3095-0-000 | Cool only | 830-950            | 24(16-28)   | 9.0           | 18(8.2)          | None            | -15/+70              |
| AHP-1200CP   | 1-3055-0-000 | Cool only | 830-950            | 24(16-28)   | 9.0           | 18(8.2)          | EXT*            | -15/+70              |
| AHP-1200CPHC | 1-3055-1-000 | Heat/Cool | 830-950            | 24(16-28)   | 9.0           | 19(8.6)          | EXT**           | -15/+70              |

\* Unit is set for 5-32 VDC external control signal, relay included

\*\* Unit is set for 5-32 VDC external control signal, H-Bridge relay(s) included

# AHP-1200CP

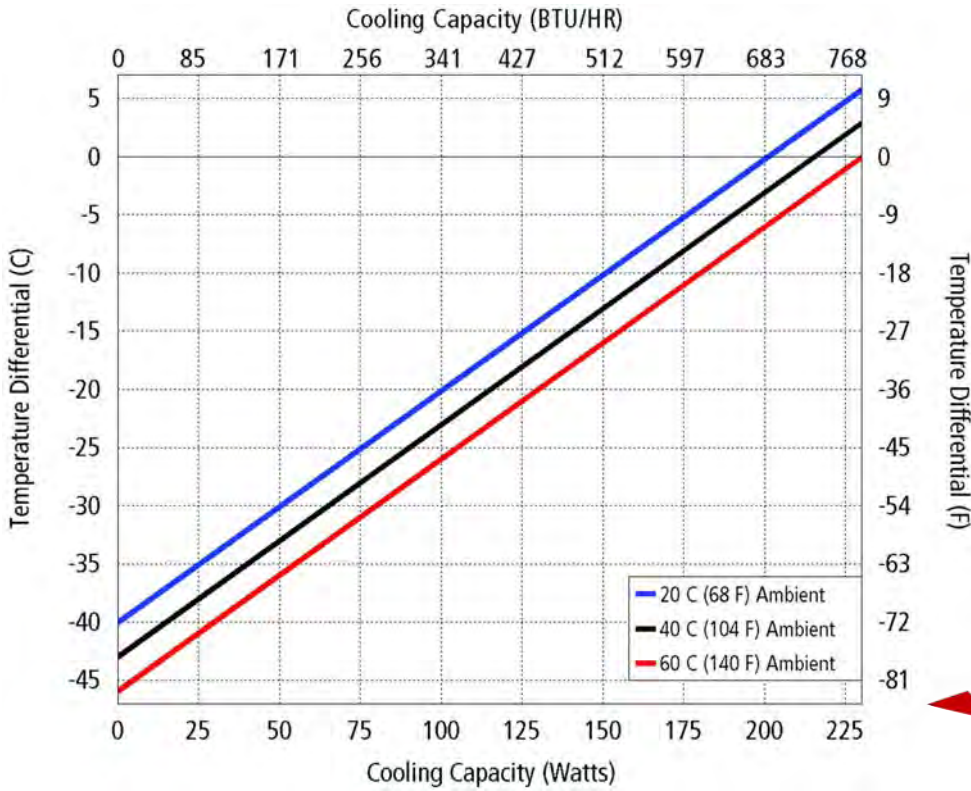
## ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

## COOLING CAPACITY

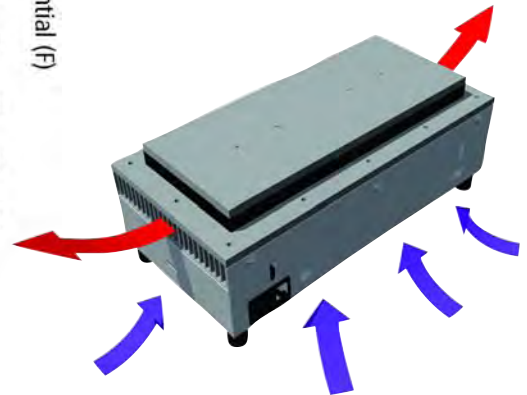
260 Watts @ 0 °C ΔT

## PERFORMANCE CURVE



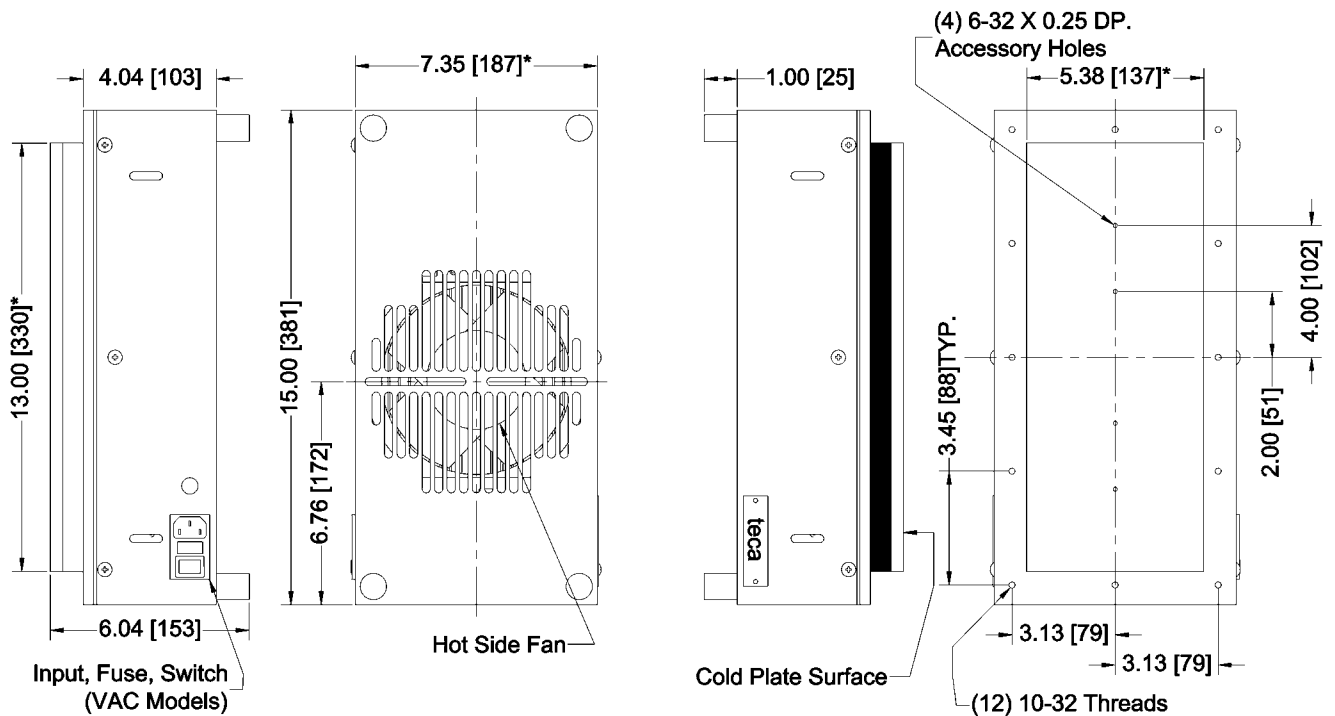
Equation of line:  $y = \Delta T(^{\circ}C)$   $x = \text{Capacity (Watts)}$

| Ambient Temp | 20°C               | 40°C               | 60°C               |
|--------------|--------------------|--------------------|--------------------|
| Cold Plate   | $y = .199x - 40.0$ | $y = .199x - 43.0$ | $y = .199x - 46.0$ |



Ambient Air Path

## DIMENSIONS



\* Dimension does not include hardware and sealant.  
Dimension: Inches [Millimeters]

# AHP-301CP Cold Plate

Air Cooled

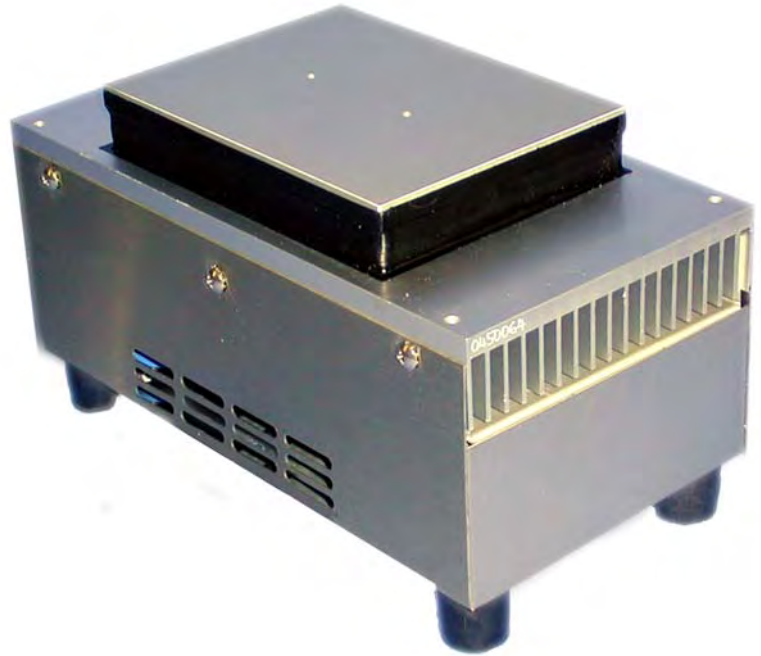
General Purpose 120 VAC, 240 VAC Input

## FEATURES

- Direct contact cooling as much as 52°C below room temperature
- Weighs only 11 lbs. (5.0 kg)
- Mounts through bench top or enclosure wall
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts in any orientation

## INCLUDES

- Cold plate accessory tapped holes
- Rubber feet
- Power input cord
- Machined cold plate surface



## SPECIFICATIONS

| MODEL       | PART NUMBER  | NOTES     | PERFORMANCE RATING<br>BTU/HR | VOLTAGE<br>VAC<br>50/60 Hz | CURRENT<br>AMPS. | WEIGHT<br>LBS. (KG) | TEMP.<br>CONTROL<br>* | OPERATING<br>AMBIENT °C |
|-------------|--------------|-----------|------------------------------|----------------------------|------------------|---------------------|-----------------------|-------------------------|
| AHP-301CP   | 1-7090-0-000 | Cool only | 225-265                      | 120                        | 1.2              | 11(5)               | none                  | -10/+60                 |
| AHP-301CP   | 1-7050-0-000 | Cool only | 225-265                      | 120                        | 1.2              | 11(5)               | EXT*                  | -10/+60                 |
| AHP-301CPHC | 1-7050-1-000 | Heat/Cool | 225-265                      | 120                        | 1.2              | 11(5)               | EXT*                  | -10/+60                 |
| AHP-301CP   | 1-7092-0-000 | Cool only | 225-265                      | 240                        | 0.6              | 11(5)               | none                  | -10/+60                 |
| AHP-301CP   | 1-7052-0-000 | Cool only | 225-265                      | 240                        | 0.6              | 11(5)               | EXT*                  | -10/+60                 |
| AHP-301CPHC | 1-7052-1-000 | Heat/Cool | 225-265                      | 240                        | 0.6              | 11(5)               | EXT*                  | -10/+60                 |

\* Unit is set for 5-32 VDC external signal, relay(s) included

# AHP-301CP

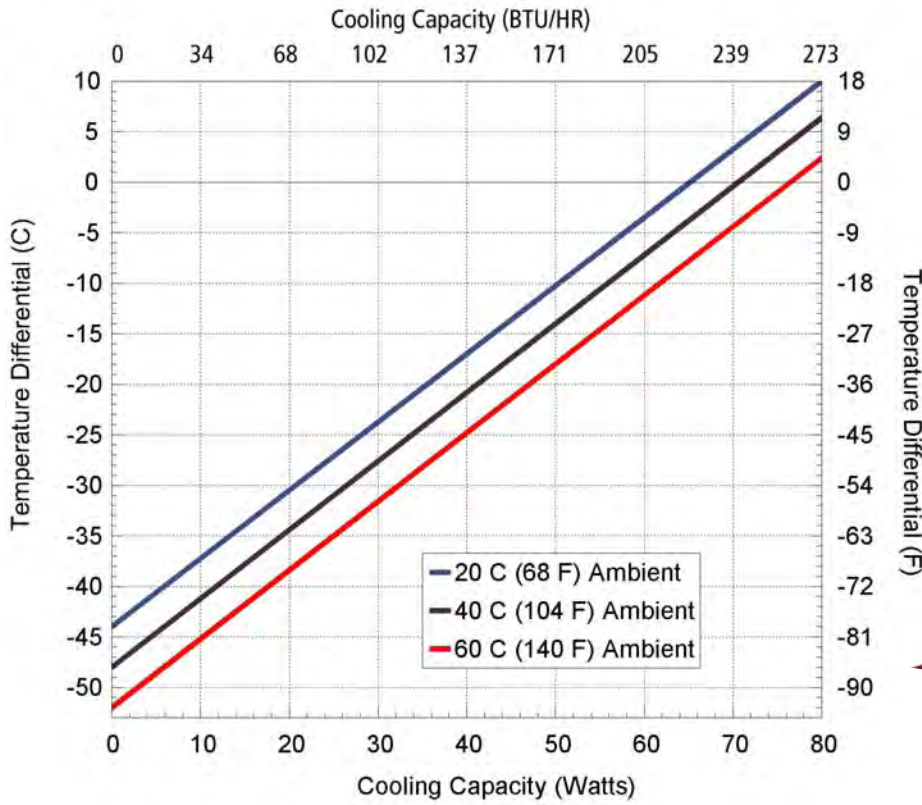
## ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

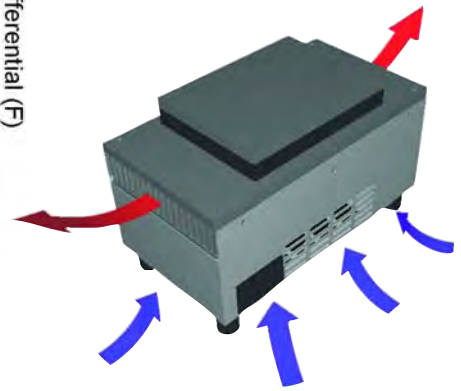
## COOLING CAPACITY

70 Watts @ 0 °C ΔT (40 °C Ambient)

## PERFORMANCE CURVE

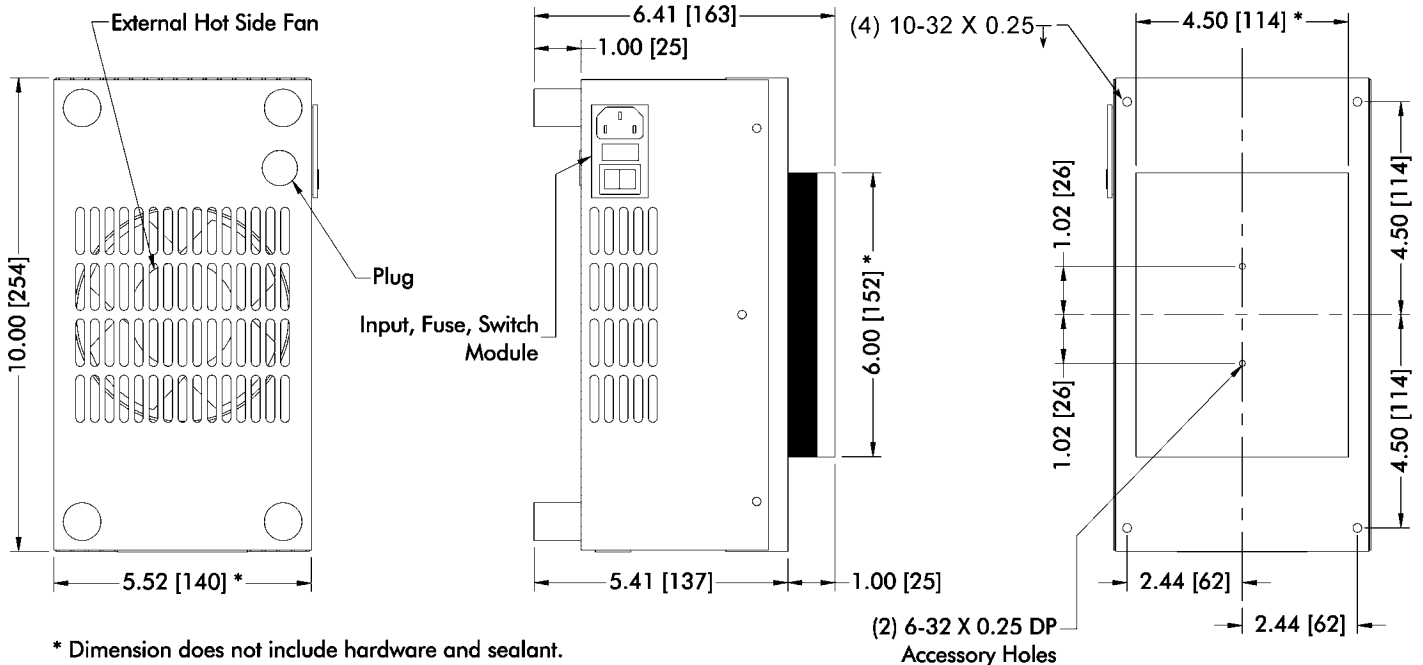


| Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$ |                   |                   |                   |
|---|-------------------|-------------------|-------------------|
| Ambient Temp  | 20°C              | 40°C              | 60°C              |
| Cold Plate  | $y = .68x - 44.0$ | $y = .68x - 48.0$ | $y = .68x - 52.0$ |



Ambient Air Path

## DIMENSIONS



\* Dimension does not include hardware and sealant.  
Dimensions: Inches [Millimeters]

# AHP-300CP AHP-150CP

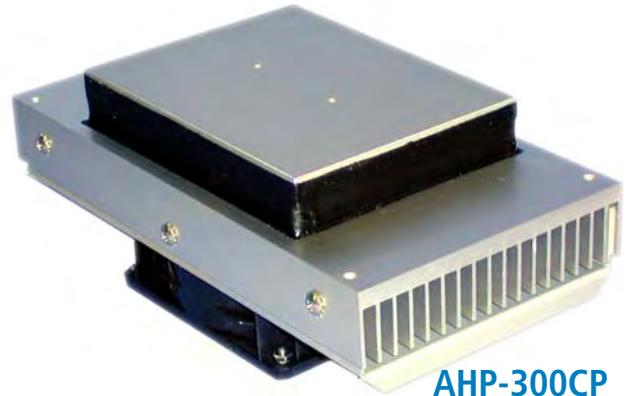
Air Cooled

# Thermoelectric Cold Plates

General Purpose VDC Input

## FEATURES

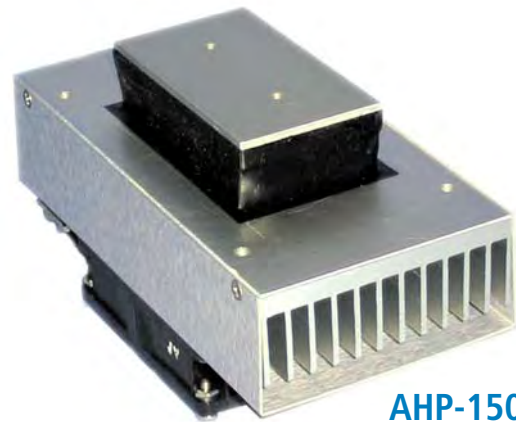
- Direct contact cooling as much as 56 °C below room temperature
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Mounts in any orientation
- Works with TC-3500



**AHP-300CP**

## INCLUDES

- Cold plate accessory tapped holes
- Machined surface
- Terminal strip for wire hook up



**AHP-150CP**

## SPECIFICATIONS AHP-300CP

| MODEL       | PART NUMBER  | NOTES                | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|-------------|--------------|----------------------|---------------------------|-------------|---------------|------------------|---------------|----------------------|
| AHP-300CP   | 1-7097-0-000 | Cool only            | 290-330                   | 12/24/48    | 12/6/3        | 6(2.7)           | None          | -10/+60              |
| AHP-300CPHC | 1-7094-1-000 | Heat/Cool            | 290-330                   | 12          | 12            | 6(2.7)           | None          | -10/+60              |
| AHP-300CPHC | 1-7095-1-000 | Heat/Cool            | 290-330                   | 24          | 6             | 6(2.7)           | None          | -10/+60              |
| AHP-300CPHC | 1-7097-1-001 | Heat/Cool Rev. Pol.* | 290-330                   | 12/24/48    | 12/6/3        | 6(2.7)           | None*         | -10/+60              |

## SPECIFICATIONS AHP-150CP

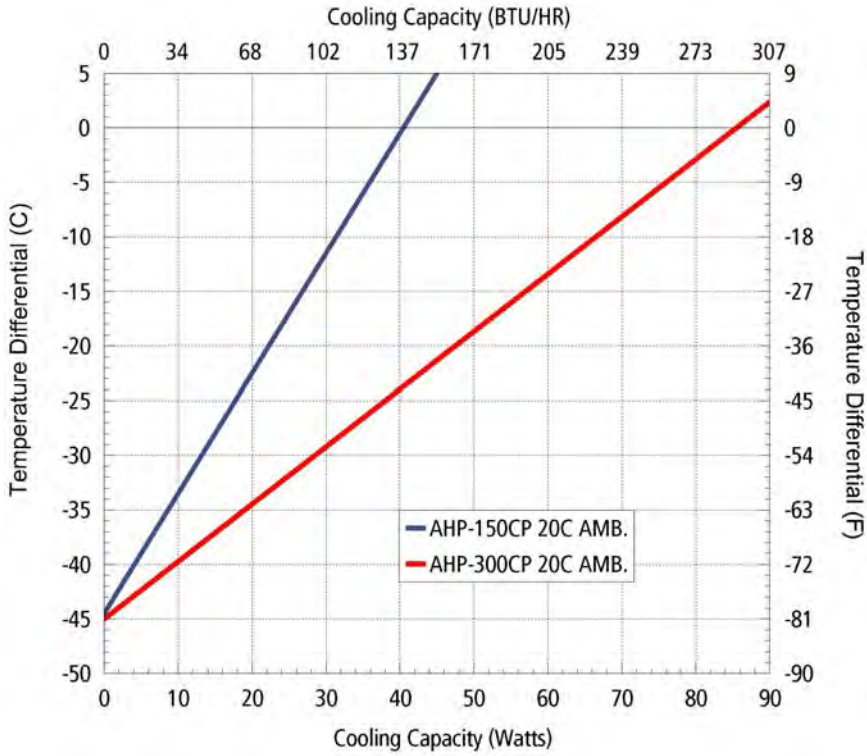
| MODEL       | PART NUMBER  | NOTES                | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | TEMP. CONTROL | OPERATING AMBIENT °C |
|-------------|--------------|----------------------|---------------------------|-------------|---------------|------------------|---------------|----------------------|
| AHP-150CP   | 1-8098-0-000 | Cool only            | 140-160                   | 12/24       | 6/3           | 2.5(1.2)         | None          | -10/+60              |
| AHP-150CPHC | 1-8094-1-000 | Heat/Cool            | 140-160                   | 12          | 6             | 2.5(1.2)         | None          | -10/+60              |
| AHP-150CPHC | 1-8095-1-000 | Heat/Cool            | 140-160                   | 24          | 3             | 2.5(1.2)         | None          | -10/+60              |
| AHP-150CPHC | 1-8098-1-001 | Heat/Cool Rev. Pol.* | 140-160                   | 12/24       | 6/3           | 2.5(1.2)         | None*         | -10/+60              |

Note: Options for temperature control, consult factory.

\* Reverse polarity unit can be used with external TC-3500 controller see P. 136

See also, "Power Supplies", P. 141

**PERFORMANCE CURVE**



**AHP-300CP**

**ENVIRONMENTS**

Bench Top, Factory, Industrial, OEM

**COOLING CAPACITY**

85 Watts @ 0 °C ΔT (20 °C Ambient)

**AHP-150CP**

**ENVIRONMENTS**

Bench Top, Laboratory, Industrial

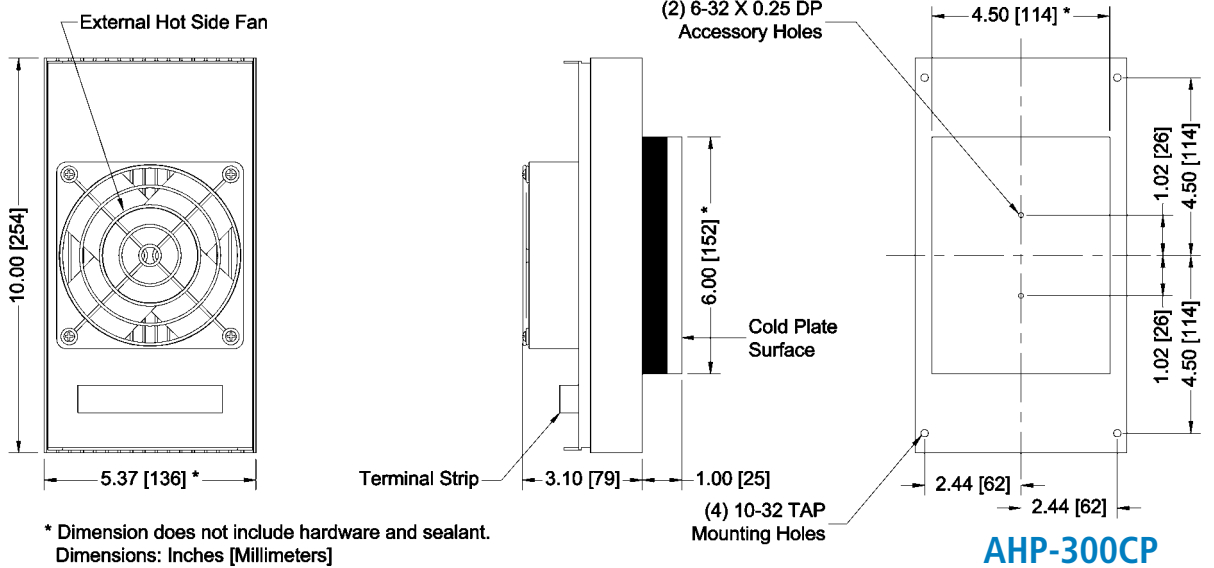
**COOLING CAPACITY**

40 Watts @ 0 °C ΔT (20 °C Ambient)

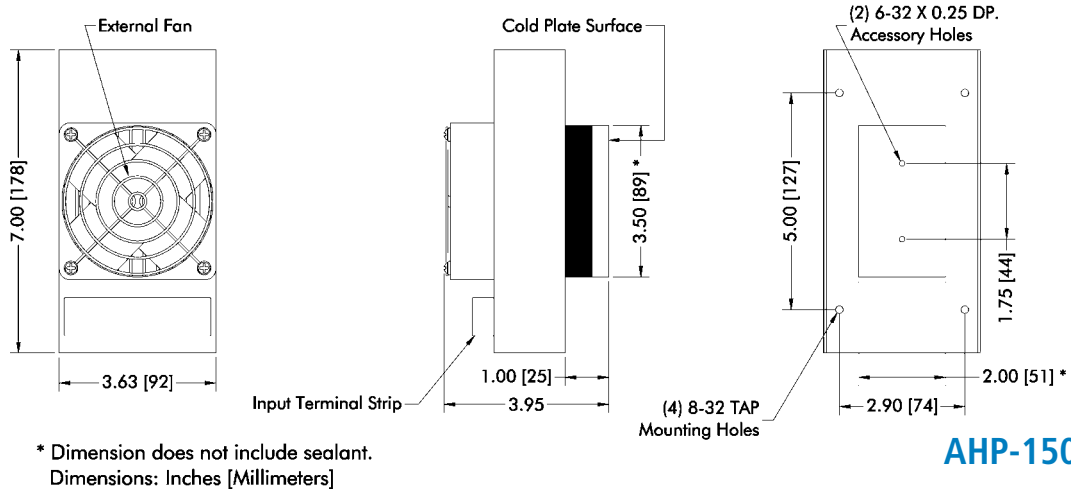
Equation of line:  $y = \Delta T(^{\circ}C)$   $x = \text{Capacity (Watts)}$

| Ambient Temp     | 20°C               | 40°C               | 60°C               |
|------------------|--------------------|--------------------|--------------------|
| 300CP Cold Plate | $y = .526x - 45.0$ | $y = .526x - 48.0$ | $y = .526x - 51.0$ |
| 150CP Cold Plate | $y = 1.1x - 44.5$  | $y = 1.1x - 48$    | $y = 1.1x - 51.5$  |

**DIMENSIONS**



**AHP-300CP**



**AHP-150CP**



# LHP-1700CP

# Liquid Cooled Cold Plate

Liquid Cooled

Multi Environment 120 VAC, 240 VAC Input

## FEATURES

- Standard 19" Rack mounting
- No moving parts
- Weighs only 20 lbs. (9.1kg)
- Direct contact cooling as much as 62 °C below liquid temperature
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Mounts in any orientation
- Requires a constant supply of cooling fluid



## INCLUDES

- Compression fittings
- Power cord
- Mounting provision

## SPECIFICATIONS

| MODEL        | PART NUMBER  | NOTES     | PERFORMANCE RATING BTU/HR | VOLTAGE VAC 50/60 HZ | CURRENT AMPS. | WEIGHT LBS. (KG) | MIN FLOW GPM | TEMP. CONTROL * | OPERATING AMBIENT °C |
|--------------|--------------|-----------|---------------------------|----------------------|---------------|------------------|--------------|-----------------|----------------------|
| LHP-1700CP   | 3-1090-0-000 | Cool only | 1360-1630                 | 120                  | 7.0           | 20(9.1)          | 0.3          | none            | 0/+70                |
| LHP-1700CP   | 3-1050-0-000 | Cool only | 1360-1630                 | 120                  | 7.0           | 20(9.1)          | 0.3          | EXT*            | 0/+70                |
| LHP-1702CP   | 3-1092-0-000 | Cool only | 1360-1630                 | 240                  | 5.0           | 20(9.1)          | 0.3          | none            | 0/+70                |
| LHP-1702CP   | 3-1052-0-000 | Cool only | 1360-1630                 | 240                  | 5.0           | 20(9.1)          | 0.3          | EXT*            | 0/+70                |
| LHP-1700CPHC | 3-1050-1-000 | Heat/Cool | 1360-1630                 | 120                  | 7.0           | 20(9.1)          | 0.3          | EXT*            | 0/+70                |
| LHP-1702CPHC | 3-1052-1-000 | Heat/Cool | 1360-1630                 | 240                  | 5.0           | 20(9.1)          | 0.3          | EXT*            | 0/+70                |

\* Unit is set for 5-32 VDC external signal, relay(s) included

# LHP-1700CP

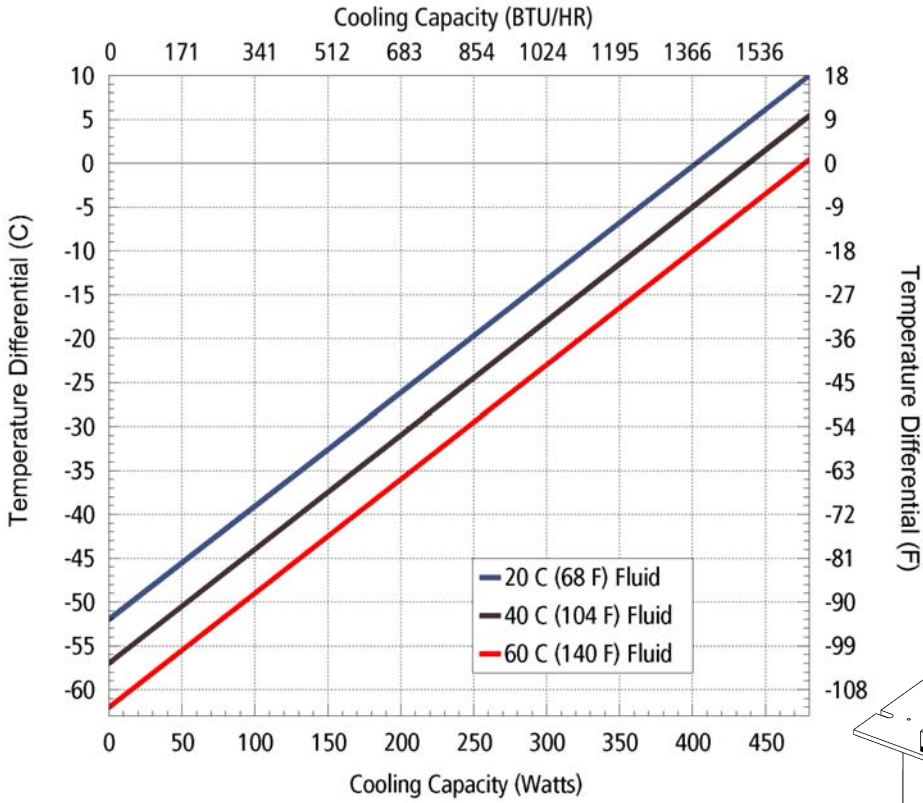
## ENVIRONMENTS

Bench Top, Factory, Industrial, OEM  
from harsh to benign environments

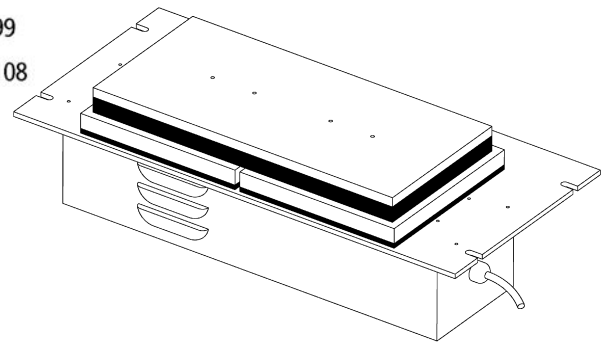
## COOLING CAPACITY

440 Watts @ 0 °C ΔT

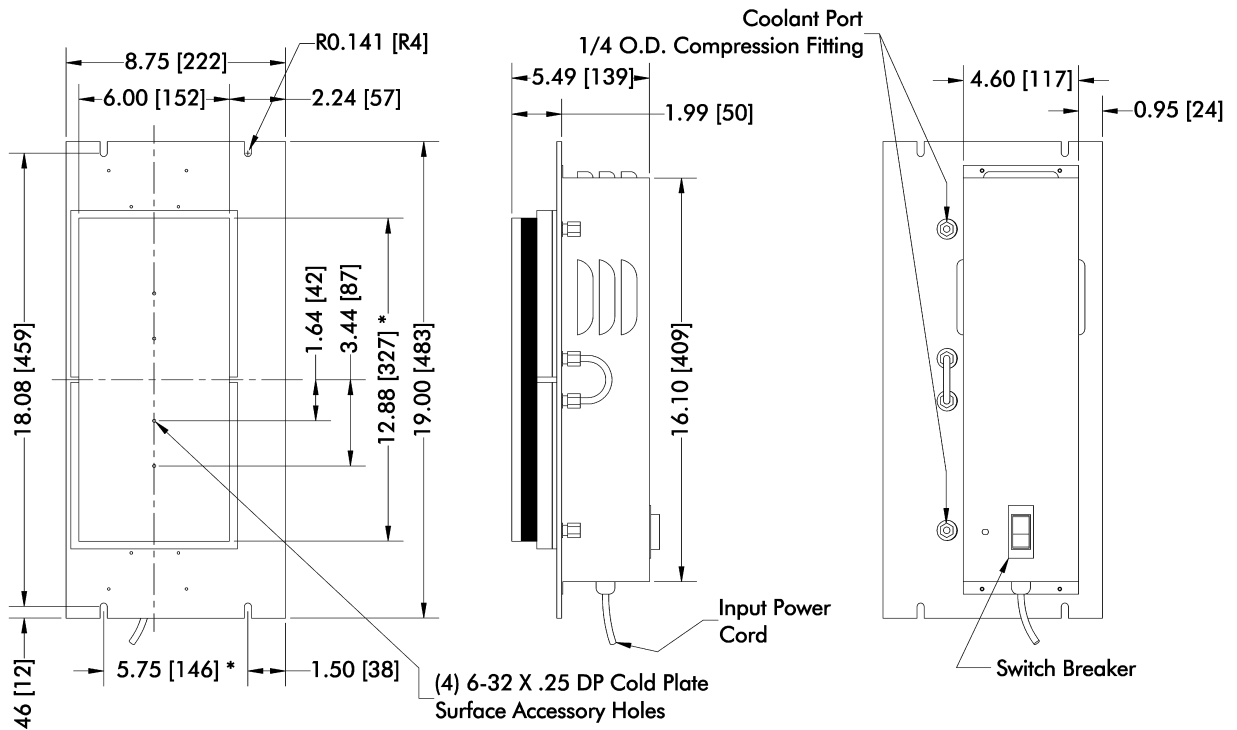
## PERFORMANCE CURVE



| Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$ |                   |                   |                   |
|---|-------------------|-------------------|-------------------|
| Fluid Temp  | 20°C              | 40°C              | 60°C              |
| Cold Plate Temp   | $y = .13x - 52.0$ | $y = .13x - 57.0$ | $y = .13x - 62.0$ |



## DIMENSIONS



\* Dimension does not include hardware and sealant.  
Dimensions: Inches [Millimeters]

# LHP-1200CP

# Liquid Cooled Cold Plate

Liquid Cooled

General Purpose 24 VDC Input

## FEATURES

- No moving parts
- Weighs only 20 lbs. (9.1kg)
- Direct contact cooling as much as 47 °C below liquid temperature
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Mounts in any orientation



## INCLUDES

- Female 1/4-18 NPT fittings
- Power input leads
- Through bench top or wall mount
- Copper fluid path (stainless steel optional)

## SPECIFICATIONS

| MODEL        | PART NUMBER  | NOTES     | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | MIN FLOW GPM | TEMP. CONTROL | OPERATING AMBIENT °C |
|--------------|--------------|-----------|---------------------------|-------------|---------------|------------------|--------------|---------------|----------------------|
| LHP-1200CP   | 3-3095-0-000 | Cool only | 1360-1630                 | 24          | 9.0           | 20(9.1)          | 0.3          | none          | 0/+70                |
| LHP-1200CP   | 3-3053-0-000 | Cool only | 1360-1630                 | 24          | 9.0           | 20(9.1)          | 0.3          | EXT*          | 0/+70                |
| LHP-1200CPHC | 3-3055-1-000 | Heat/Cool | 1360-1630                 | 24          | 9.0           | 20(9.1)          | 0.3          | EXT**         | 0/+70                |

\* Unit is set for 5-32 VDC external signal, relay included

\*\* Unit is set for 5-32 VDC external signal, H-Bridge quad relay(s) included

For stainless steel fluid path contact TECA

# LHP-1200CP

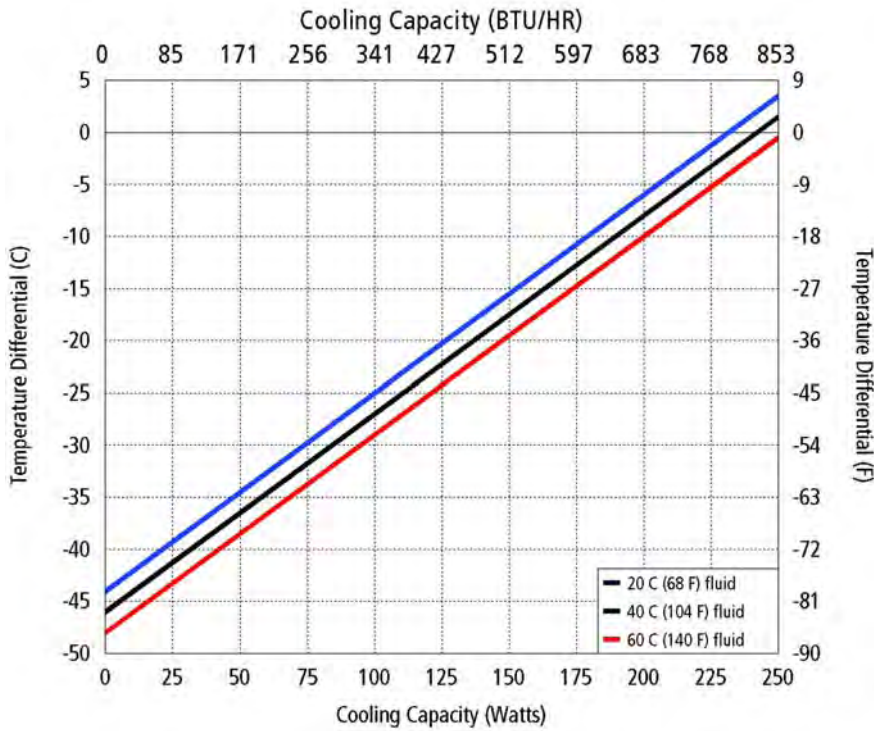
## ENVIRONMENTS

Bench Top, Factory, Industrial, OEM  
from harsh to benign environments

## COOLING CAPACITY

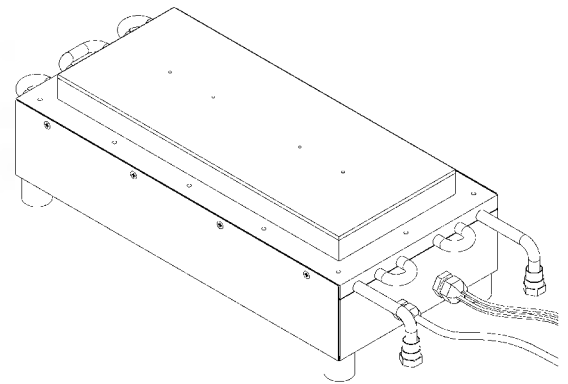
260 Watts @ 0 °C ΔT

## PERFORMANCE CURVE

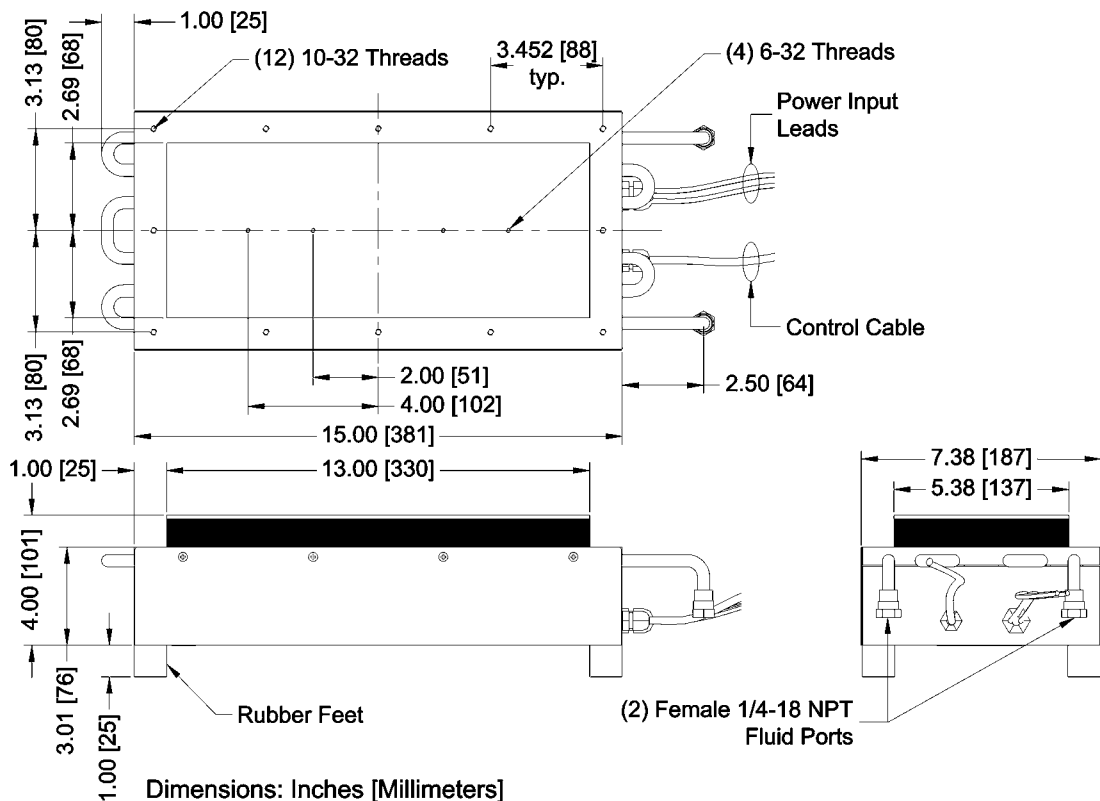


Equation of line:  $y = \Delta T(^{\circ}C)$   $x = \text{Capacity (Watts)}$

| Fluid Temp      | 20°C              | 40°C              | 60°C              |
|-----------------|-------------------|-------------------|-------------------|
| Cold Plate Temp | $y = .19x - 44.0$ | $y = .19x - 46.0$ | $y = .19x - 48.0$ |



## DIMENSIONS



# LHP-800CP LHP-300CP LHP-150CP

Liquid Cooled

## Thermoelectric Cold Plates

General Purpose VDC Input



LHP-800CP



LHP-300CP



LHP-150CP

### FEATURES

- No moving parts
- Direct contact cooling as much as 51 °C below liquid temperature
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Mounts in any orientation

### INCLUDES

- Compression fittings
- Auxiliary mounting holes
- Machined cold plate surfaces

### SPECIFICATIONS LHP-800CP

| MODEL       | PART NUMBER  | NOTES        | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | MIN FLOW GPM | OPERATING AMBIENT °C | HEAT VOLTAGE |
|-------------|--------------|--------------|---------------------------|-------------|---------------|------------------|--------------|----------------------|--------------|
| LHP-800CP   | 3-5095-0-000 | Heat/Cool *  | 700-830                   | 24          | 14            | 5.2 (2.3)        | 0.3          | 0/+70                | 24 VDC       |
| LHP-800CPHC | 3-5095-1-000 | Heat/Cool ** | 700-830                   | 24          | 14            | 5.2 (2.3)        | 0.3          | 0/+70                | 24 VDC       |

\* Heating via reverse polarity to thermoelectrics

\*\* Heating via embeded resistive heaters in the cold plate

### SPECIFICATIONS LHP-300CP

| MODEL       | PART NUMBER  | NOTES        | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | MIN FLOW GPM | OPERATING AMBIENT °C | HEAT VOLTAGE |
|-------------|--------------|--------------|---------------------------|-------------|---------------|------------------|--------------|----------------------|--------------|
| LHP-300CP   | 3-7098-0-000 | Heat/Cool *  | 280-335                   | 12/24       | 12/6          | 1.8 (.81)        | 0.2          | 0/+70                | 12/24 VDC    |
| LHP-300CPHC | 3-7095-1-000 | Heat/Cool ** | 280-335                   | 24          | 6             | 1.8 (.81)        | 0.2          | 0/+70                | 24 VDC       |

\* Heating via reverse polarity to thermoelectrics

\*\* Heating via embeded resistive heaters in the cold plate

### SPECIFICATIONS LHP-150CP

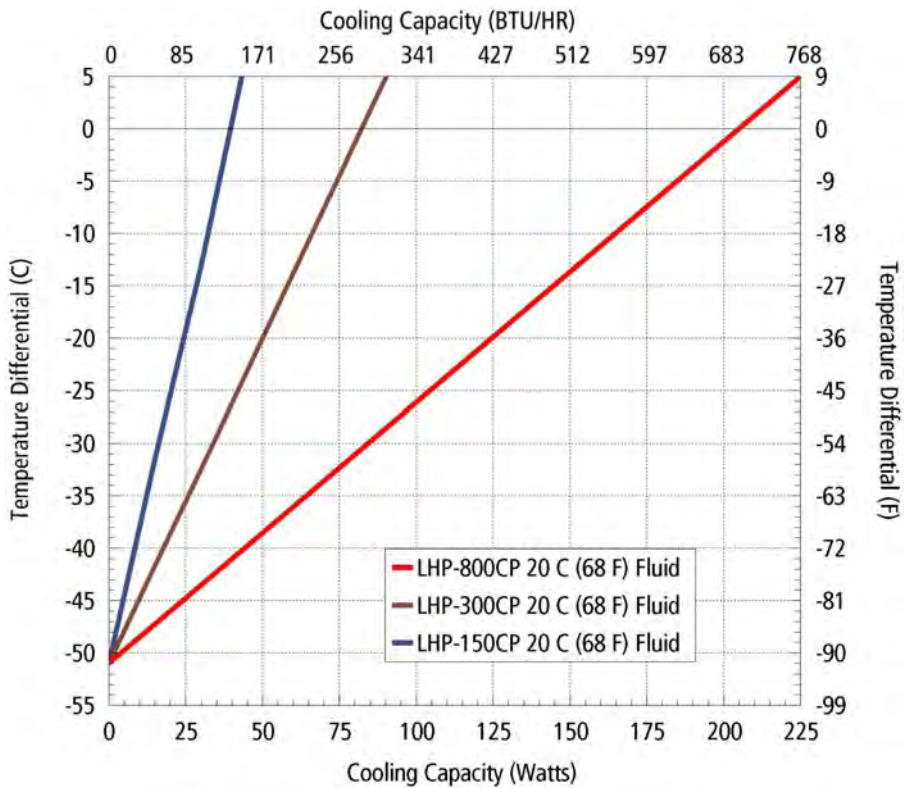
| MODEL       | PART NUMBER  | NOTES        | PERFORMANCE RATING BTU/HR | VOLTAGE VDC | CURRENT AMPS. | WEIGHT LBS. (KG) | MIN FLOW GPM | OPERATING AMBIENT °C | HEAT VOLTAGE |
|-------------|--------------|--------------|---------------------------|-------------|---------------|------------------|--------------|----------------------|--------------|
| LHP-150CP   | 3-8094-0-000 | Heat/Cool *  | 130-160                   | 12          | 4.5           | .75(.34)         | 0.2          | 0/+70                | 12 VDC       |
| LHP-150CPHC | 3-8094-1-000 | Heat/Cool ** | 130-160                   | 12          | 4.5           | .75(.34)         | 0.2          | 0/+70                | 12 VDC       |
| LHP-150CPHC | 3-8099-1-000 | Heat/Cool ** | 130-160                   | 12          | 4.5           | .75(.34)         | 0.2          | 0/+70                | 120 VAC      |

\* Heating via reverse polarity to thermoelectrics

\*\* Heating via embeded resistive heaters in the cold plate

Note: Option for temperature control, consult factory. See also , "Power Supplies", P. 141

## PERFORMANCE CURVE



Cold Plate - Liquid Cooled

## LHP-800CP

COOLING CAPACITY

205 Watts @ 0 °C ΔT

## LHP-300CP

COOLING CAPACITY

82 Watts @ 0 °C ΔT

## LHP-150CP

COOLING CAPACITY

40 Watts @ 0 °C ΔT

Equation of line:  $y = \Delta T(^{\circ}C) \quad x = \text{Capacity (Watts)}$

| Fluid Temp | 20°               | 40°C              | 60°C              |
|------------|-------------------|-------------------|-------------------|
| LHP-800CP  | $y = .25x - 51.0$ | $y = .25x - 56.0$ | $y = .25x - 61.0$ |
| LHP-300CP  | $y = .62x - 51.0$ | $y = .62x - 56.0$ | $y = .62x - 61.0$ |
| LHP-150CP  | $y = 1.3x - 51.0$ | $y = 1.3x - 56.0$ | $y = 1.3x - 61.0$ |

## DIMENSIONS

