

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

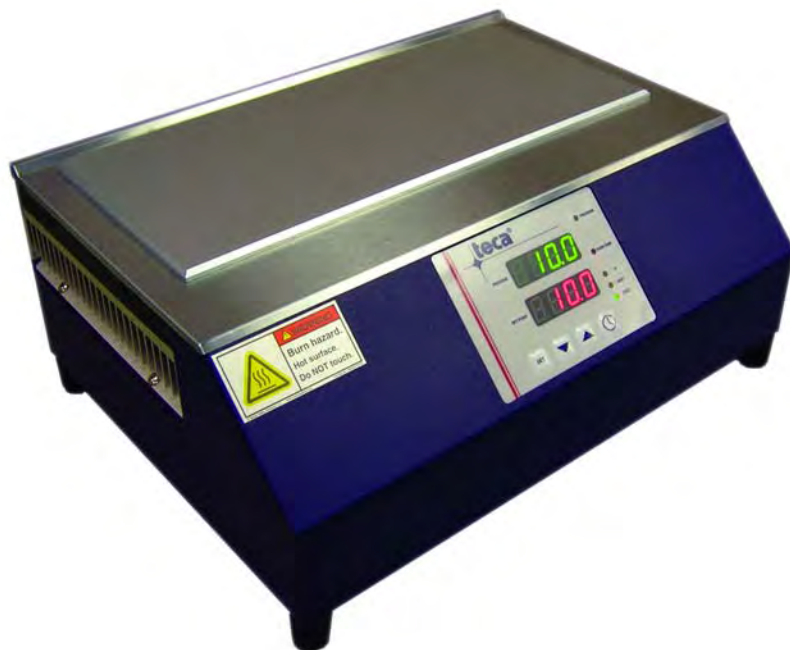
100-240 VAC Input

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

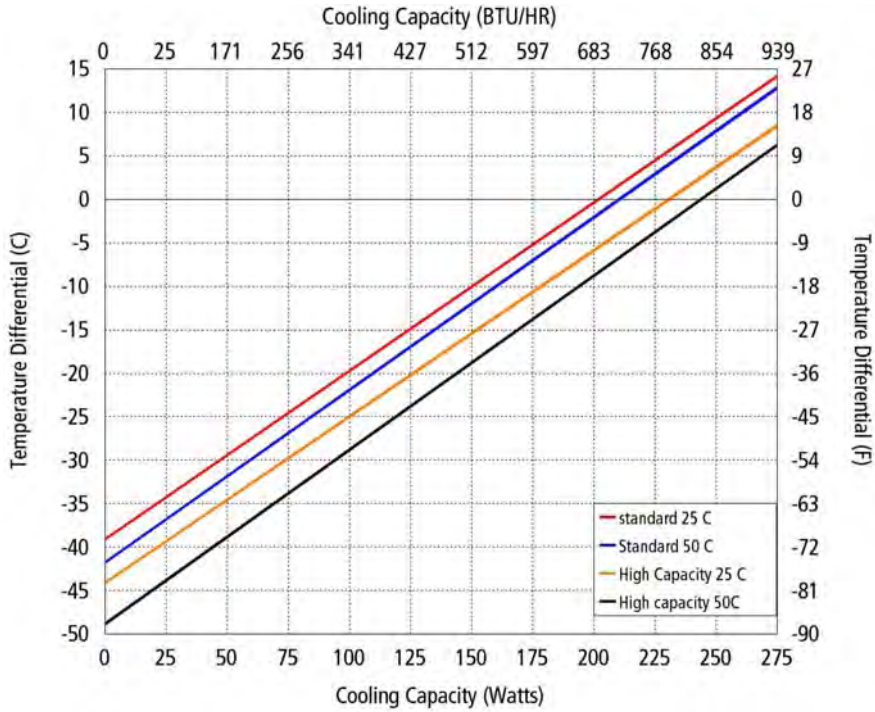
ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

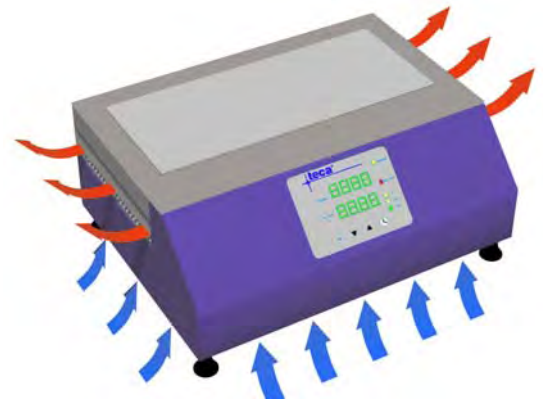
COOLING CAPACITY

200 - 230 Watts @ 0 °C ΔT

PERFORMANCE CURVE

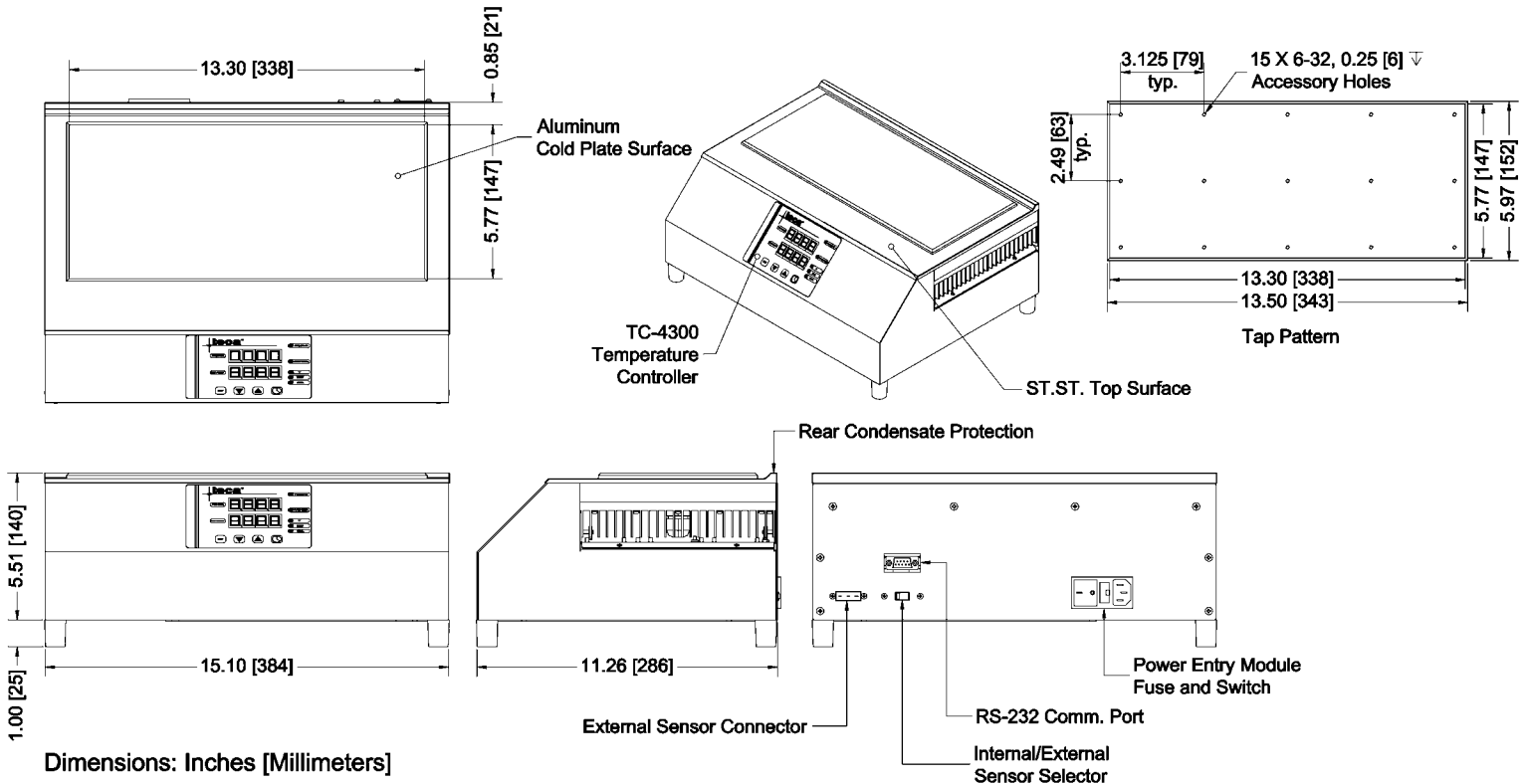


Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$		
Ambient Temp	25°C	50°C
Standard	$y = .195x - 39.1$	$y = .195x - 41.8$
High capacity	$y = .185x - 44.9$	$y = .185x - 48.8$



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

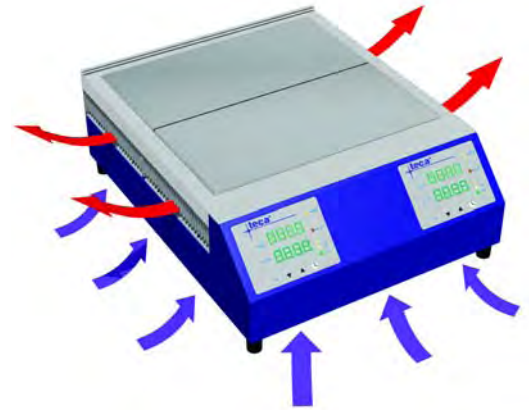
- Bench top
- Laboratory
- Industrial

COOLING CAPACITY (individual plate)

200 - 240 Watts @ 0 °C ΔT

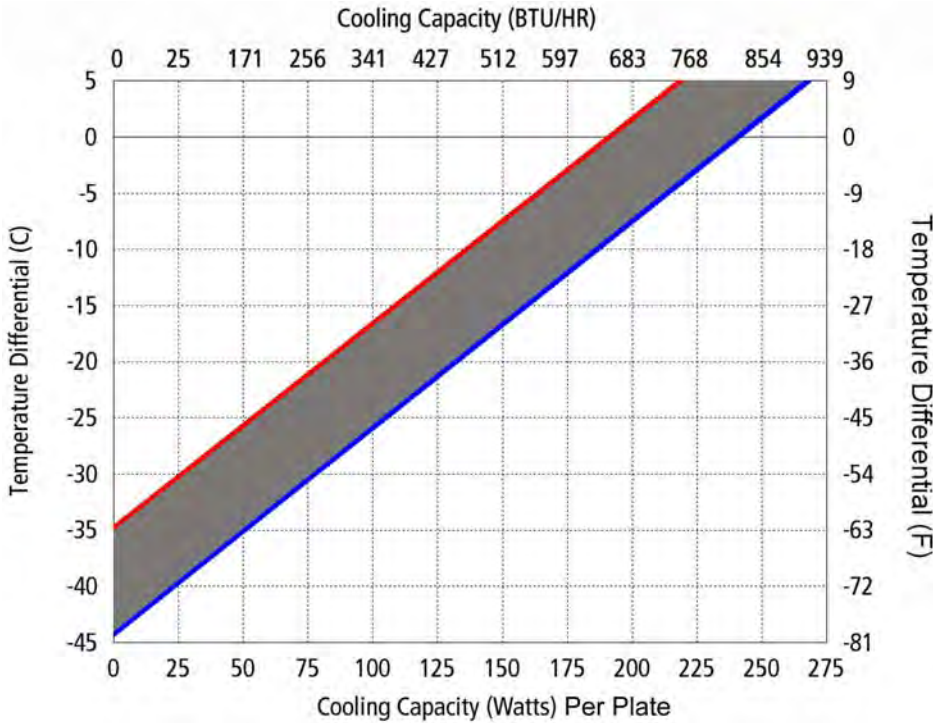
COOLING CAPACITY (combined)

400 - 480 Watts @ 0 °C ΔT



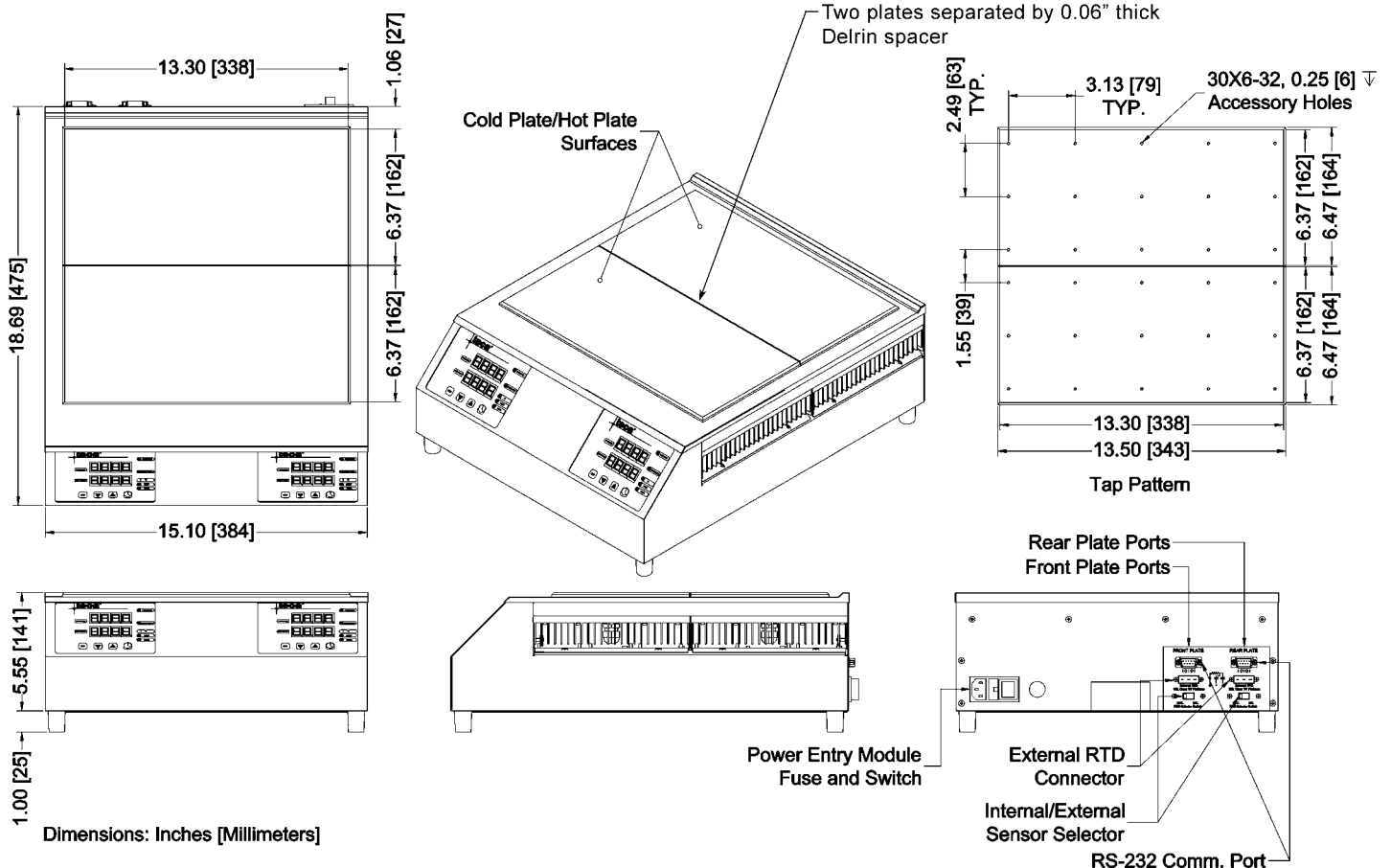
Ambient Air Path

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

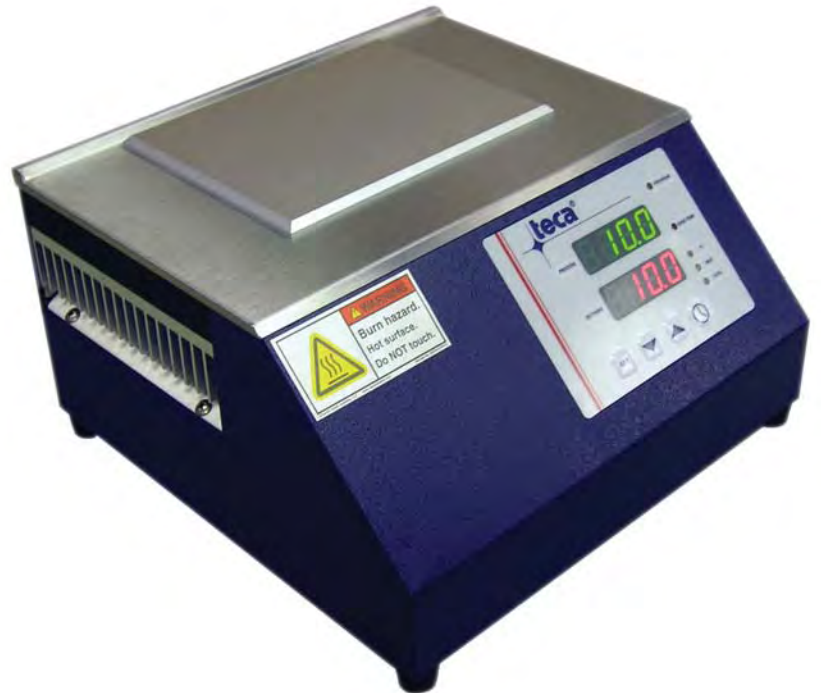
100-240 VAC Input

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
- Variable fan speed for quieter operation
- 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

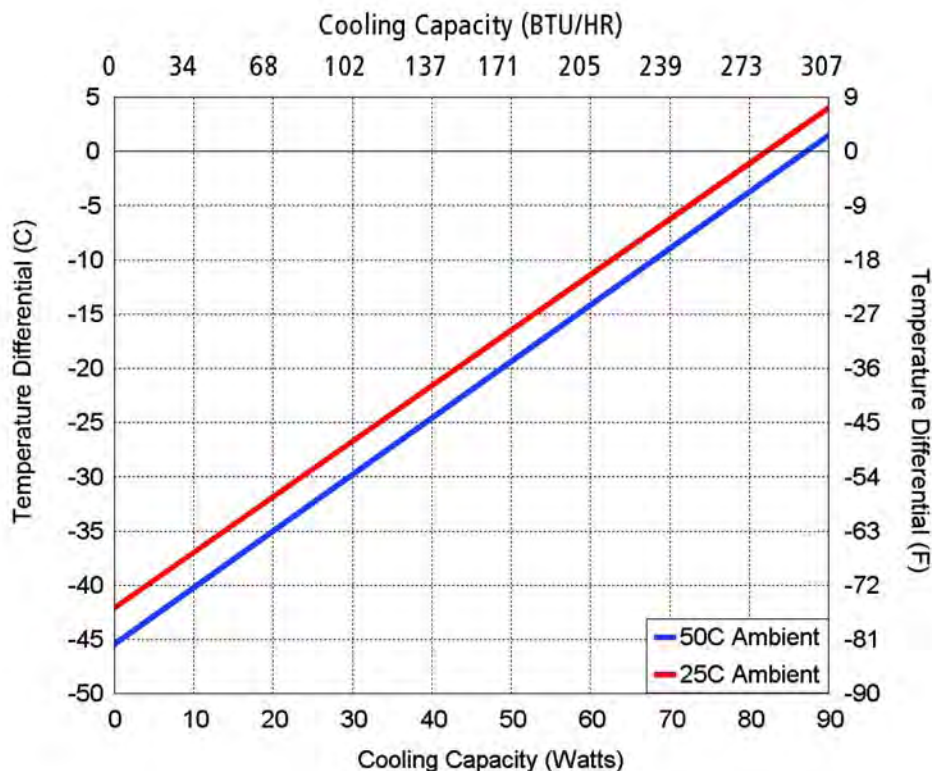
ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

COOLING CAPACITY

82 Watts @ 0 °C ΔT

PERFORMANCE CURVE

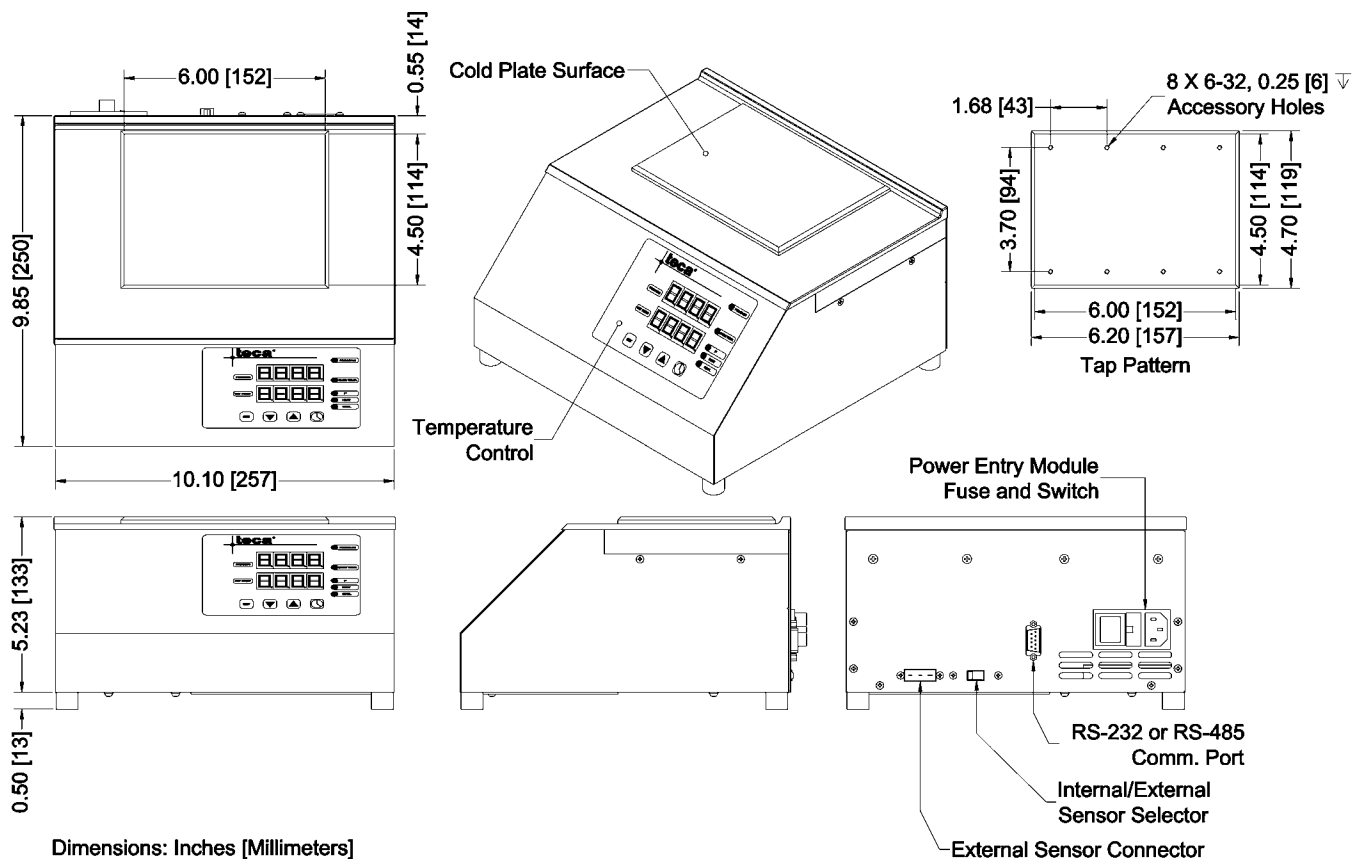


Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$		
Ambient Temp	25°C	50°C
Cold Plate	$y = .51x - 42.1$	$y = .51x - 45.4$



Ambient Air Path

DIMENSIONS



AHP-800MSP

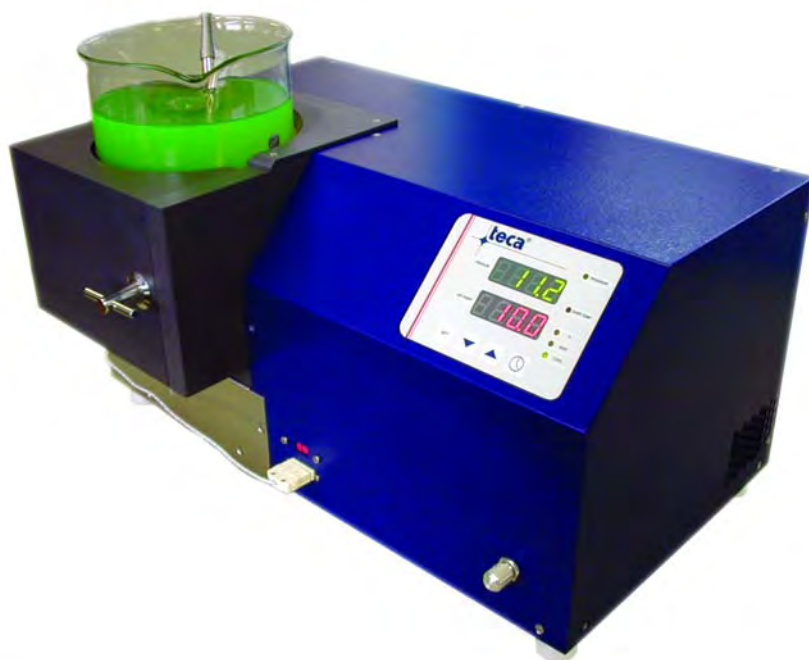
Magnetic Stirring Cold/Hot Plate

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
- Configurations for various bottle/beaker sizes
- 100-240 VAC universal, Integral power supply
- Power input cord set
- 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
- Removable bottle block for different size bottles or beakers



INCLUDES

- Integral PID "tunable" temperature control
- One shot smart PID control tuning or Adaptive Smart Continuous Tuning
- Internal RTD sensor
- Remote Sensibility™ switchable exterior RTD sensor
- Multi-segment ramp and soak programs
- RS-232 communications
- i-tools software for easy programming and control tweaking
- Optional software for charting and data acquisition
- Stock bottle block for 3 liter beaker (6" diameter)

APPLICATIONS

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

SPECIFICATIONS

MODEL	PART NUMBER	NOTES	VOLTAGE VAC 50/60 HZ	CURRENT AMPS.	WEIGHT LBS. (KG)	TEMP. CONTROL	OPERATING AMBIENT °C
AHP-800MSP	9-50EB-1-001	Heat/Cool	100-240	1.7-4.8	38 (17.3)	TC-4300	0-45

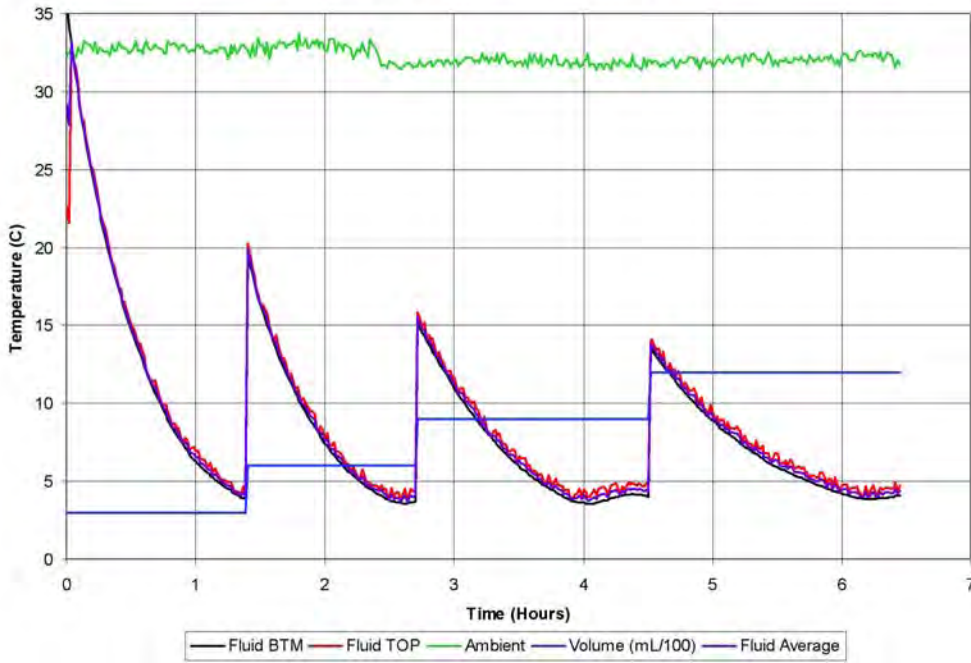
AHP-800MSP

ENVIRONMENTS

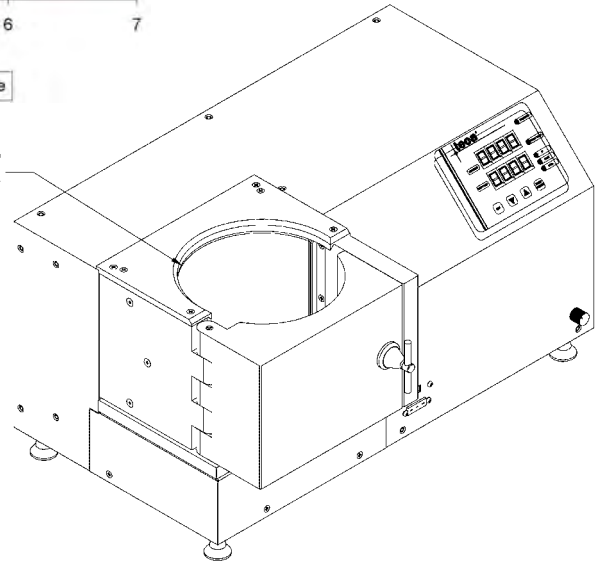
- Bench top
- Laboratory
- Industrial

PERFORMANCE CURVE

AHP-800MSP (stir rate ~ 50 RPM)
300mL (40C H2O added @ intervals of 1-2 hours)

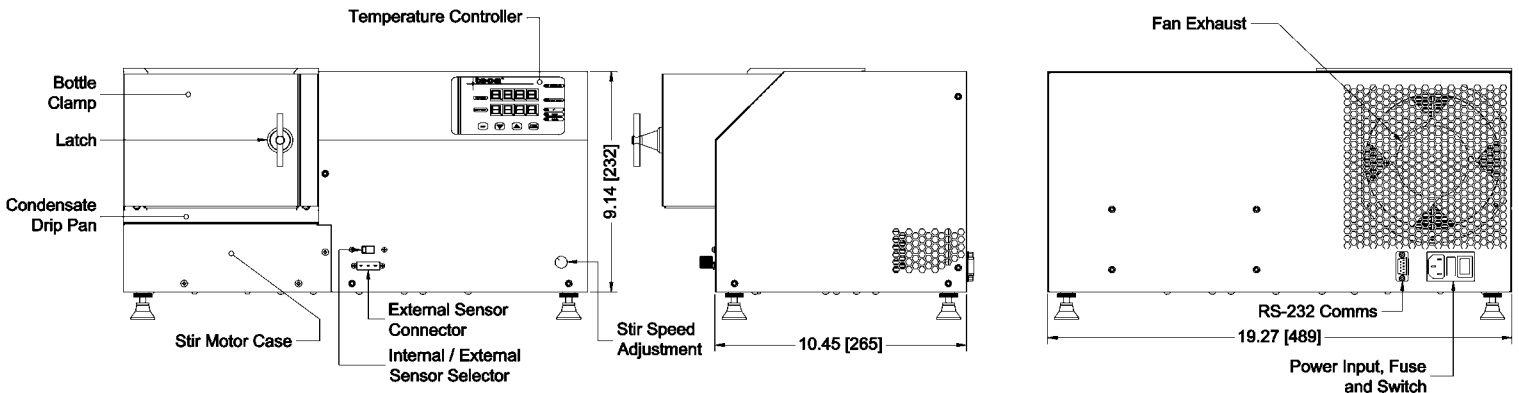


Opening for Ø6" Bottle or Beaker



The AHP-800MSP has a removable "bottle block" that makes it adaptable to different size bottles and beakers. Swap different bottle blocks for different diameter vessels.
The stock version holds a 3 liter beaker (reference VWR # 89090-522)
Tell us your required diameter and we will design one for you.

DIMENSIONS



Dimensions: Inches [Millimeters]

CPV Thermal Gradient Bar

Thermal Gradient Bar

OVERVIEW

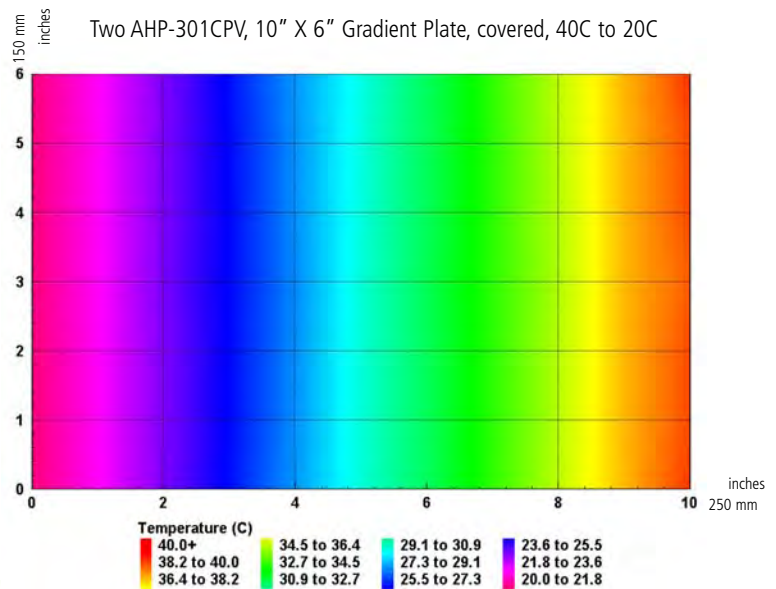
TECA's Gradient Bar options expand the use of the CPV line of Cold Plates. With a TECA model CPV cold plate at each end the gradient bar has programmable gradient areas with near linear gradients between the two ends and near uniform temperatures along the width of the bar. The temperature at each end 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 ΔT) to 70C (ΔT of 45C)

TEMPERATURE STUDY APPLICATIONS

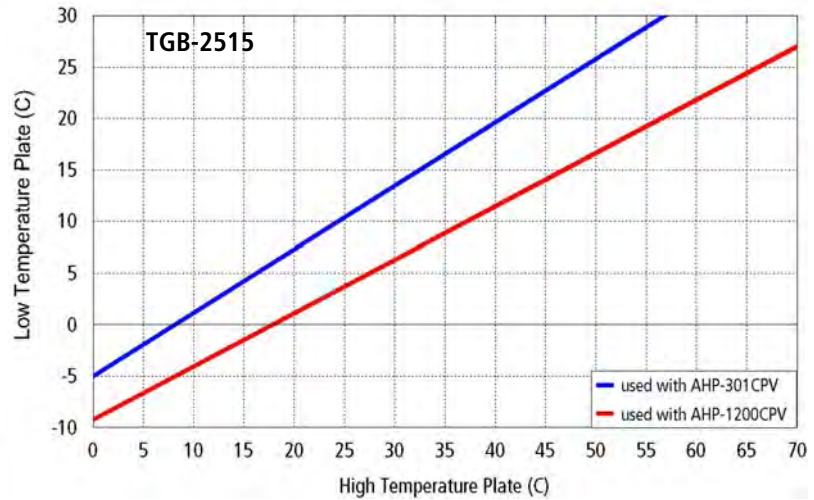
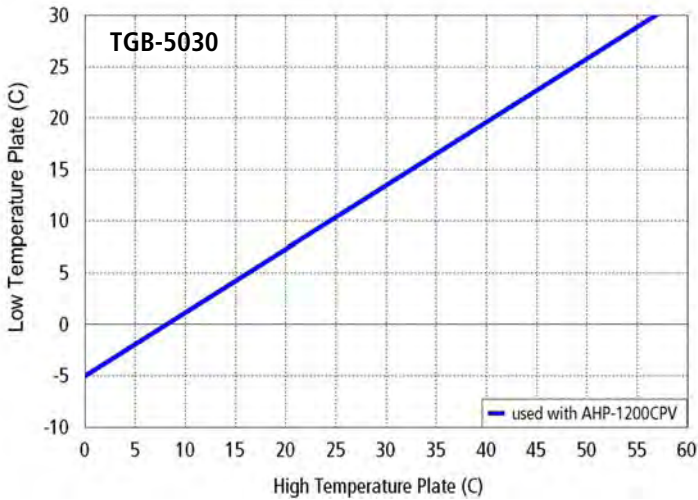
- Insects
- Mammals
- Micro-organisms
- Plants
- Chemicals
- Incubation
- At rest
- Feeding
- Preference
- Soil Biochemistry
- Root Growth
- Seed Germination
- Film forming
- Paints
- Adhesives
- Melting Points
- More



SPECIFICATIONS

MODEL	GRADIENT PLATE SIZE (L X W X H) mm	GRADIENT AREA	FINISH	USE WITH 2 Each	EMBEDDED 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.

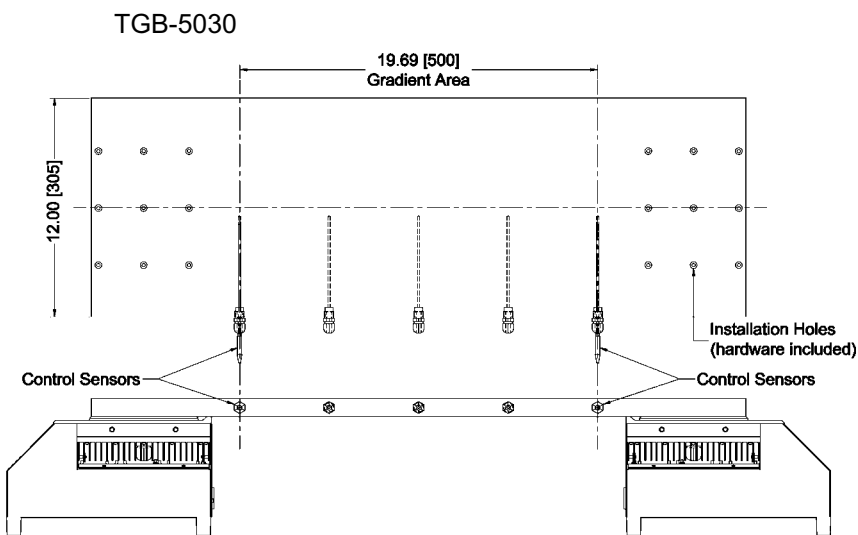
Extend a vertical line up until you meet the characteristic line of your preferred gradient plate/CPV combination.

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.

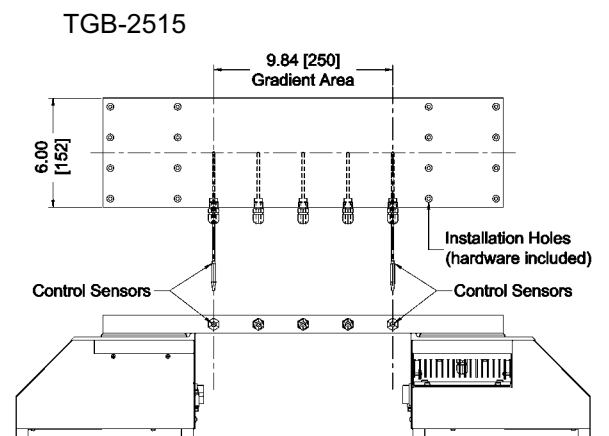
The curves shown, are test results in a 20 C ambient non condensing and the gradient area covered by an acrylic cover.

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

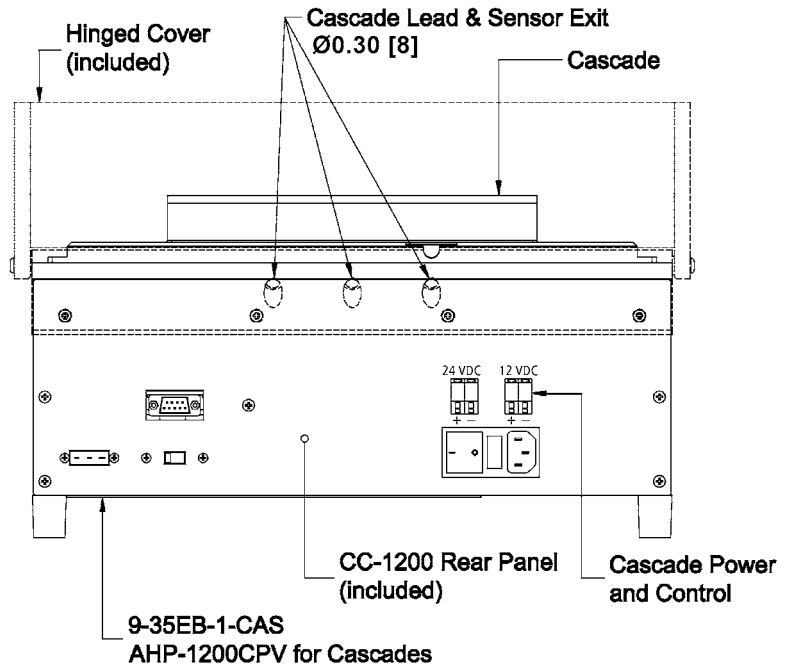
- Mounting hardware
- Power input leads
- Thermally conductive substrate pad
- Precision machined cold plate surfaces
- Embedded RTD sensor and connector for use with **AHP-1200CAS**



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

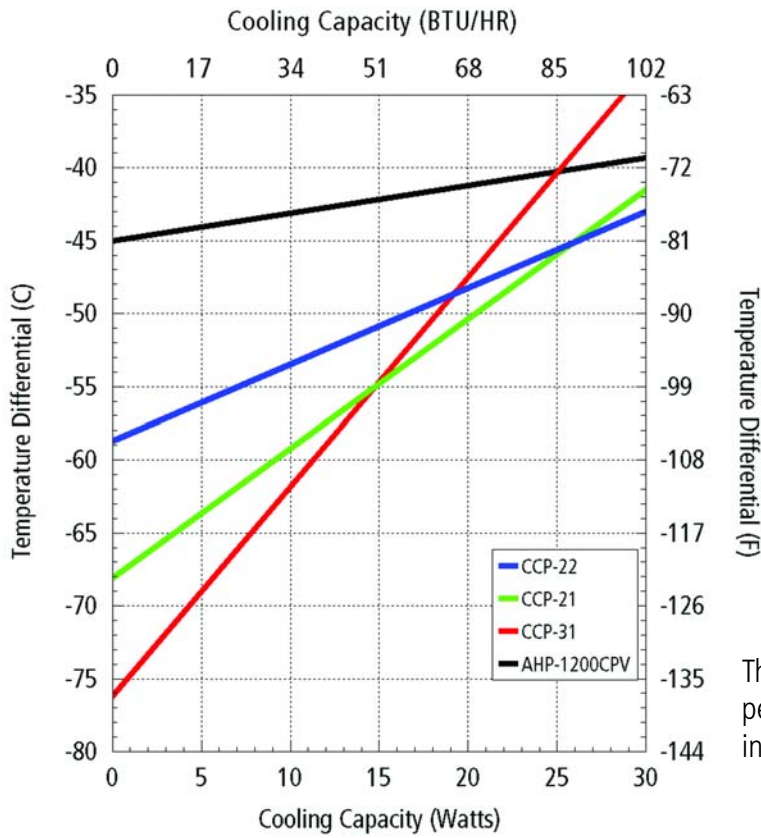
ENVIRONMENTS

- Bench top
- Laboratory
- Industrial

Maximum ΔT

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

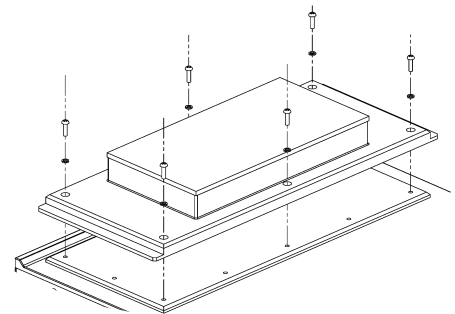
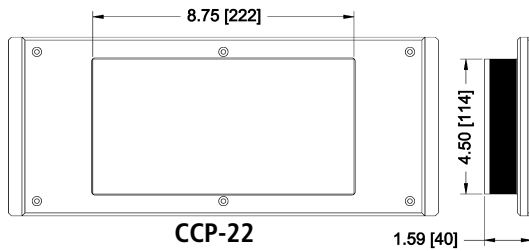
PERFORMANCE CURVE



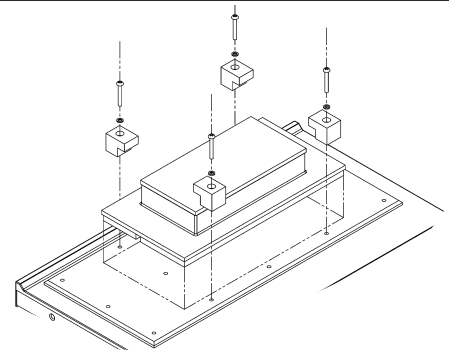
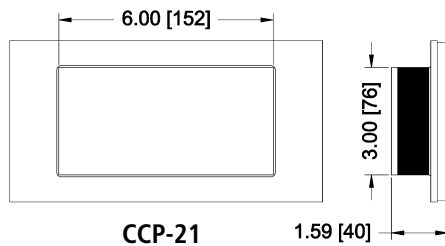
This performance curves represent tests performed in 25 °C ambient with well insulated cold plate surface.

DIMENSIONS

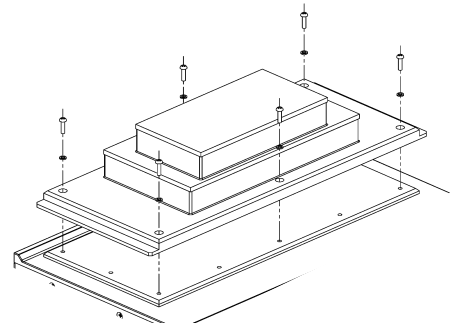
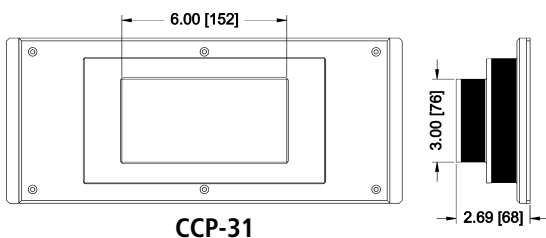
TWO STAGE - LARGE PLATE



TWO STAGE - SMALL PLATE



THREE STAGE



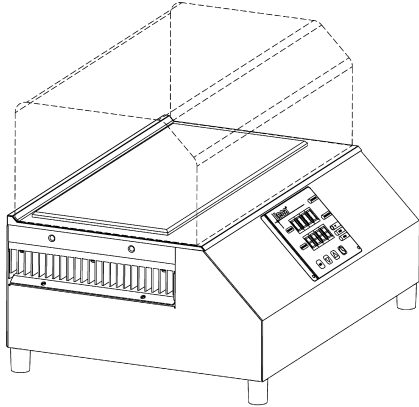
Dimensions: Inches [Millimeters]

CPV Accessories

Covers and Barriers

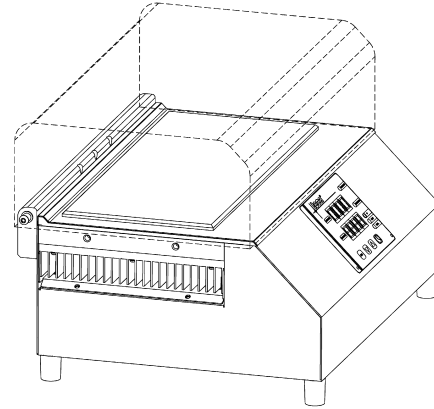
COVERS AND BARRIERS

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



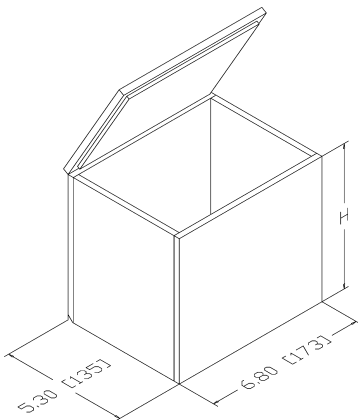
- C-301** 10[254] X 6.5[165] X 4[102] **CN-301** cover for ACP-301
C-1200 15[381] X 8[203] X 5[127] **CN-1200** cover for ACP-1200

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

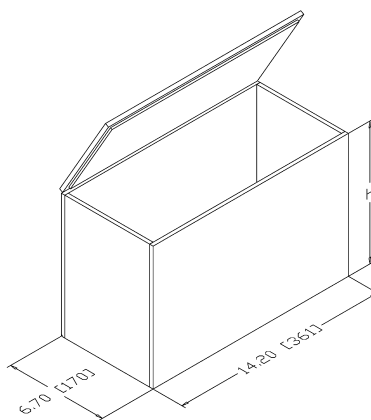


- CH-301** 11[279] X 7.4[188] X 4[102] **CHN-301** cover for ACP-301
CH-1200 16[406] X 9.3[236] X 5[127] **CHN-1200** cover for ACP-1200

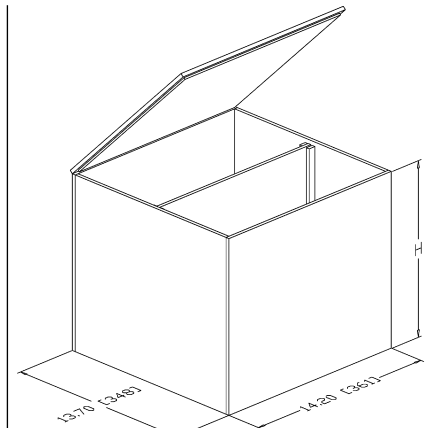
Clear acrylic barriers for AHP-301CPV and AHP-1200CPV and AHP-1200DCP cold plates. Includes unhinged cover.



BH-301 H = Height in inches



BH-1200 H = Height in inches



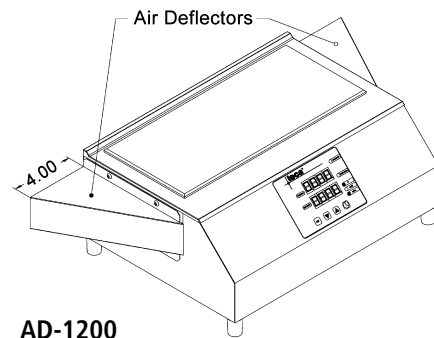
BH-1200DCP H = Height in inches

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.

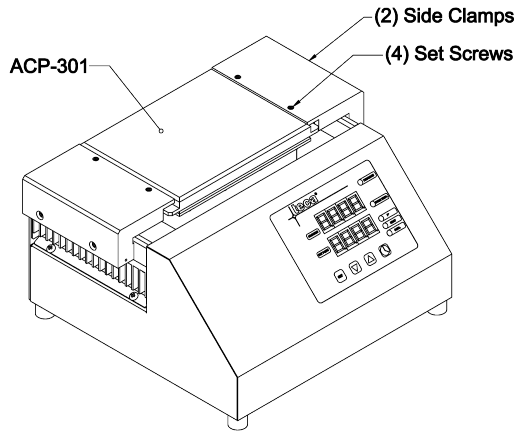
INSULATION

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

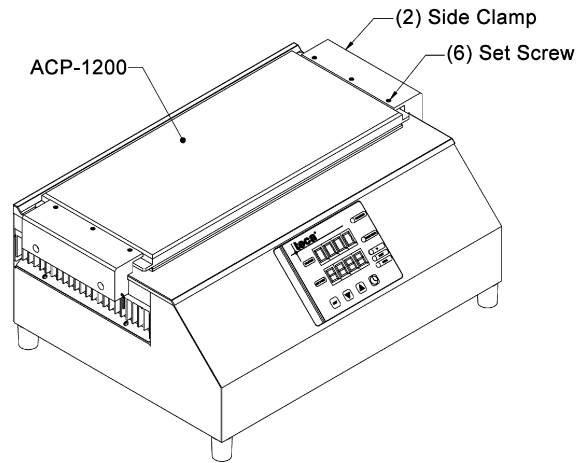
- INS-03** 15" X 2" X 8" Use with AHP-1200CPV
INS-04 10" X 2" X 6" Use with AHP-301CPV

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.



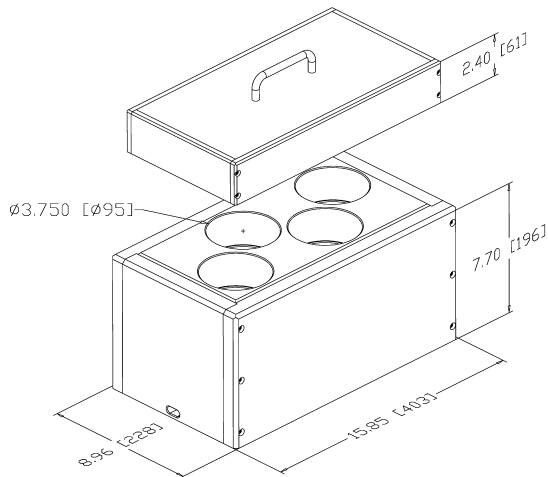
ACP-301 6.2[157] X 4.7[119] Surface
Contact TECA for more details



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

COLD WELL

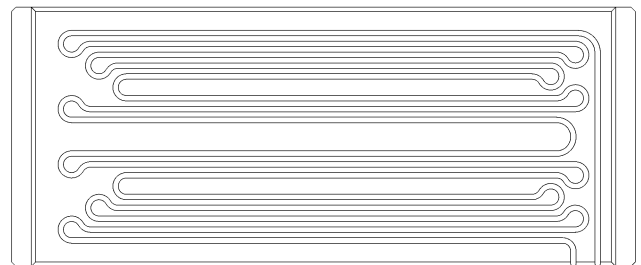
Used with 1000 mL Boston Round bottles.



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

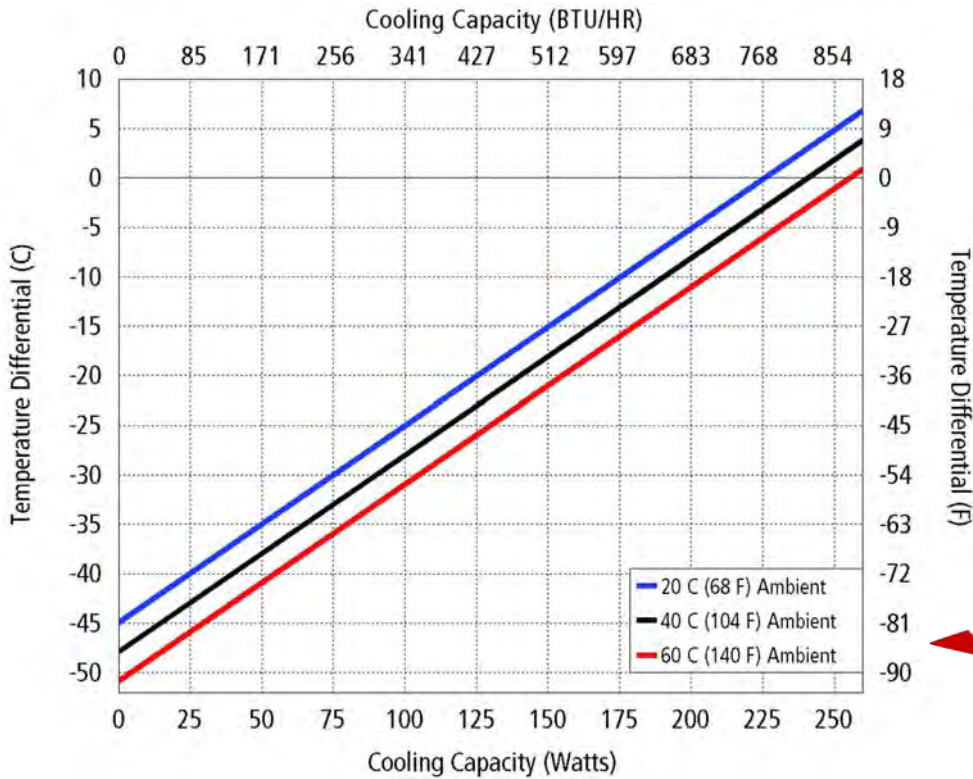
ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

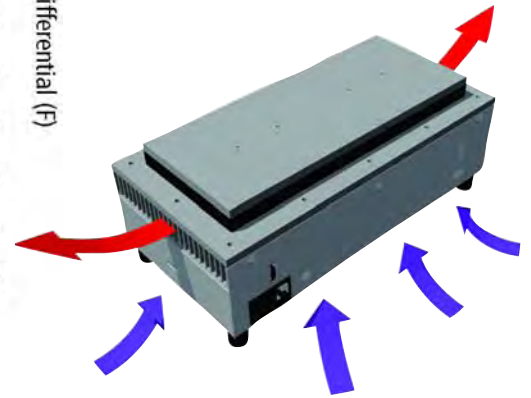
COOLING CAPACITY

225 Watts @ 0 °C ΔT

PERFORMANCE CURVE

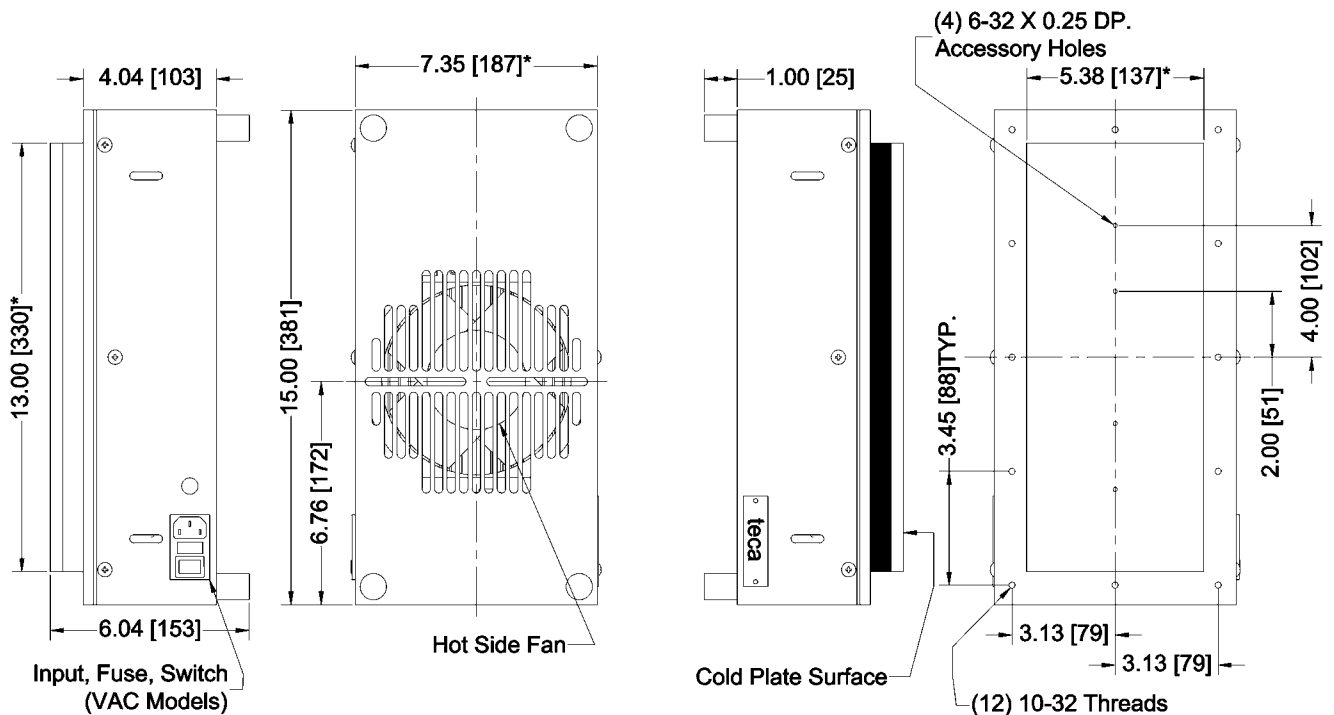


Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$			
Ambient Temp	20°C	40°C	60°C
Cold Plate	$y = .199x - 44.9$	$y = .199x - 47.9$	$y = .199x - 50.8$



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

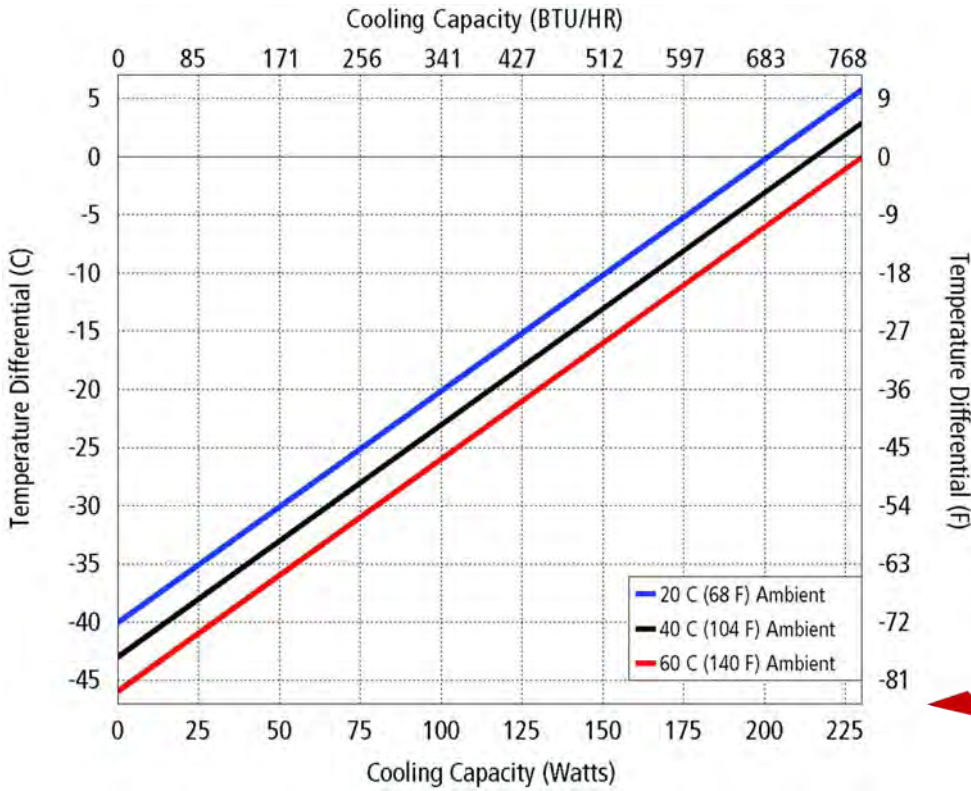
ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

COOLING CAPACITY

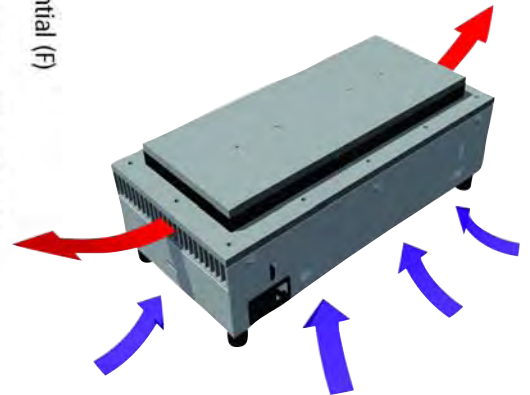
260 Watts @ 0 °C ΔT

PERFORMANCE CURVE



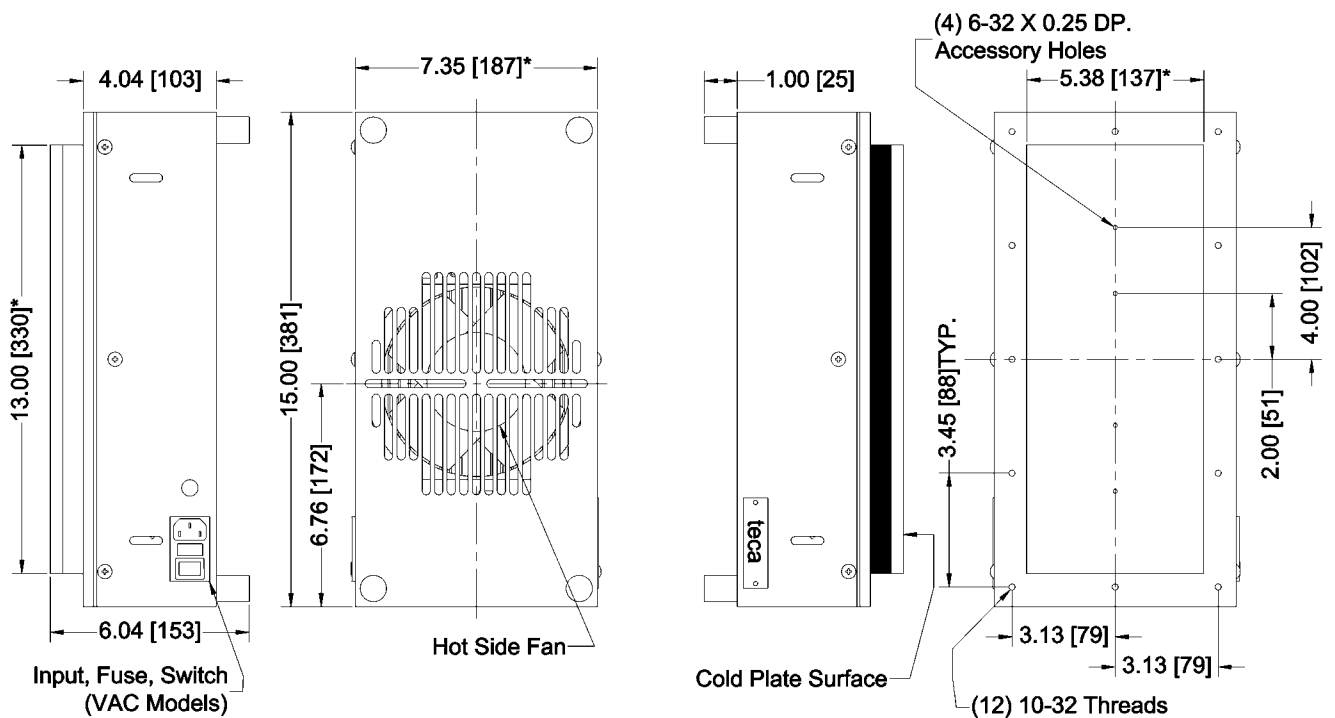
Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$

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

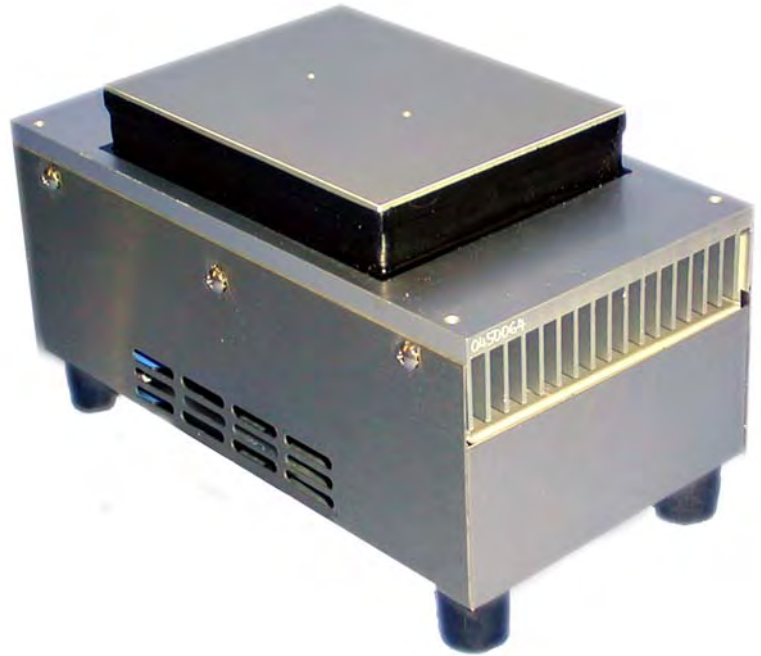
General Purpose 120 VAC, 240 VAC Input

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 BTU/HR	VOLTAGE VAC 50/60 Hz	CURRENT AMPS.	WEIGHT LBS. (KG)	TEMP. CONTROL *	OPERATING 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

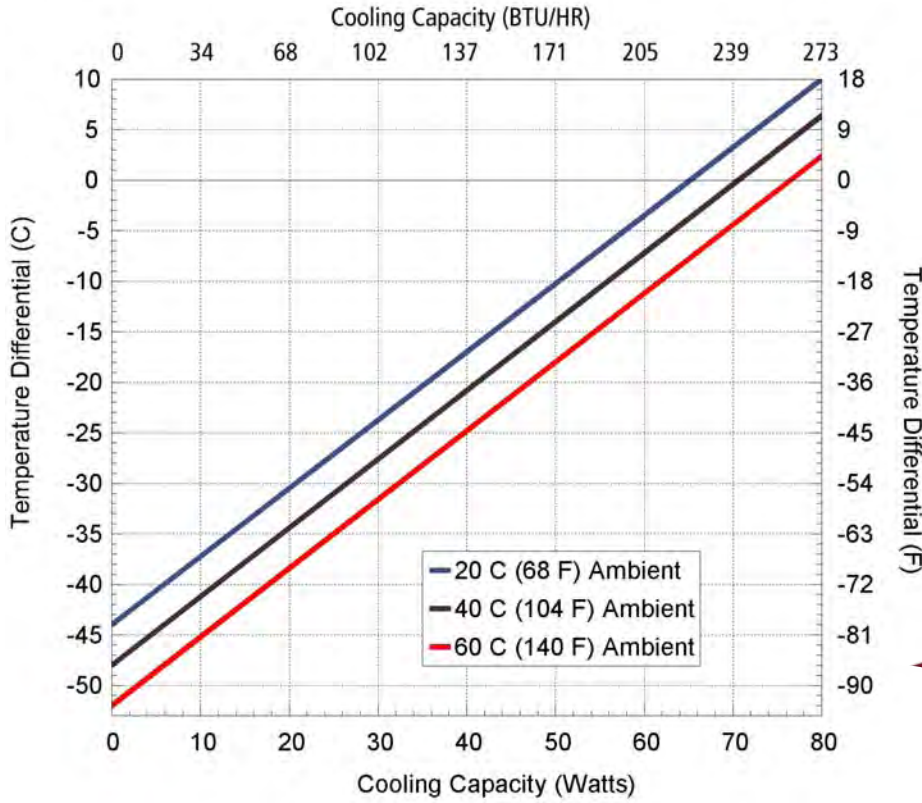
ENVIRONMENTS

- Bench top
- Factory
- Industrial/OEM

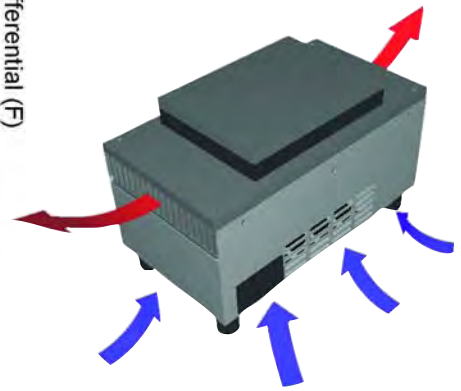
COOLING CAPACITY

70 Watts @ 0 °C ΔT (40 °C Ambient)

PERFORMANCE CURVE

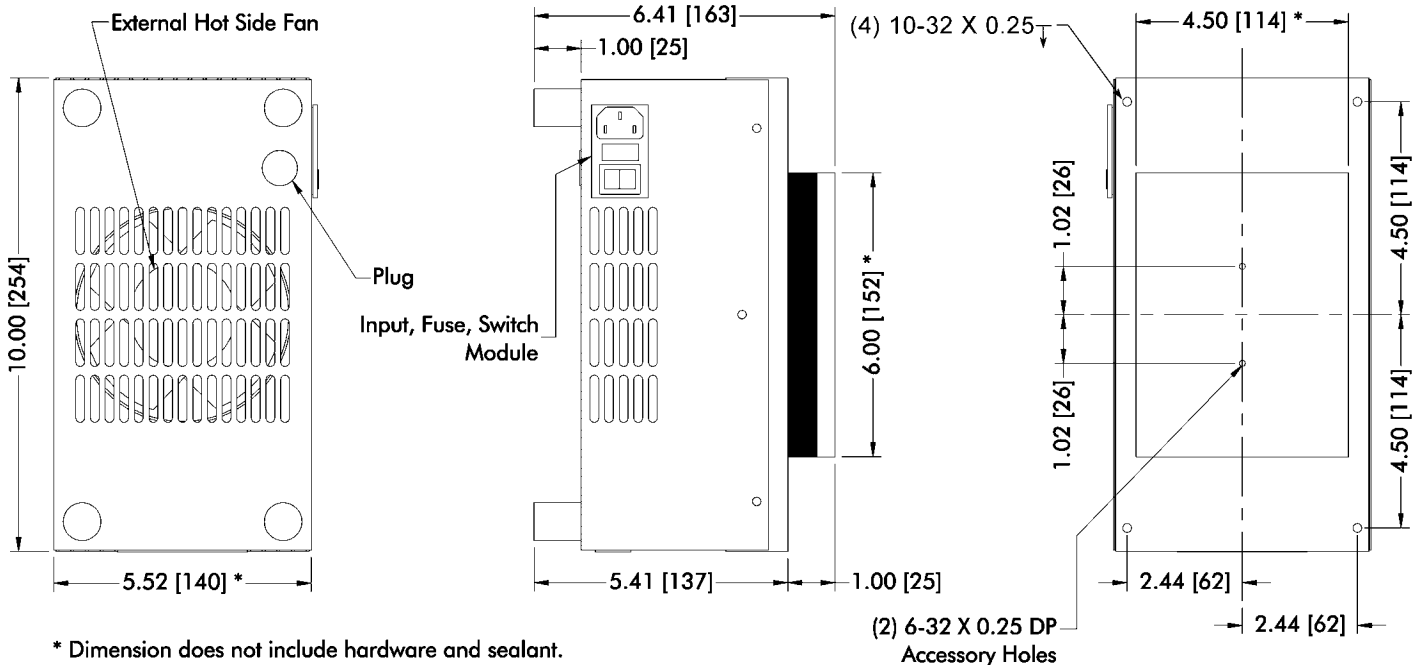


Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$			
Ambient Temp	20°C	40°C	60°C
Cold Plate	$y = .68x - 44.0$	$y = .68x - 48.0$	$y = .68x - 52.0$



Ambient Air Path

DIMENSIONS



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

AHP-300CP AHP-150CP

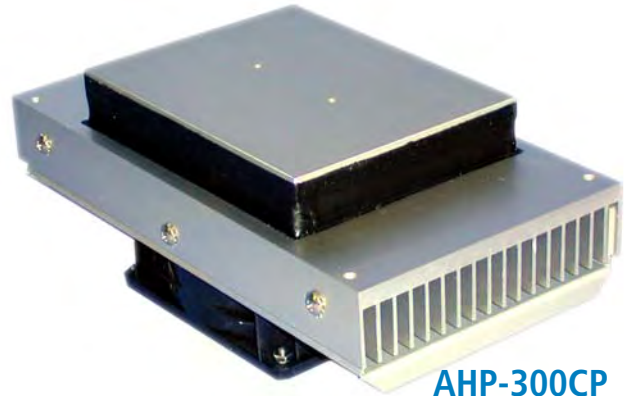
Air Cooled

Thermoelectric Cold Plates

General Purpose VDC Input

FEATURES

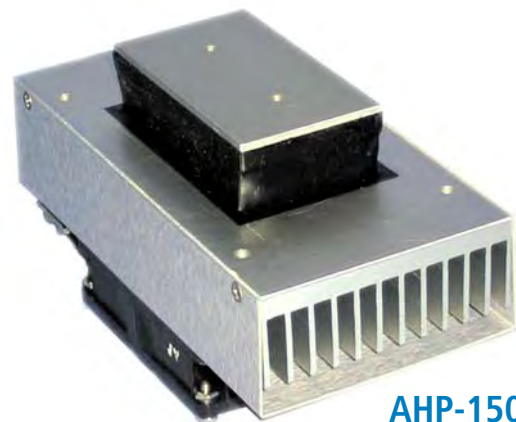
- Direct contact cooling as much as 56 °C below room temperature
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Mounts in any orientation
- Works with TC-3500



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

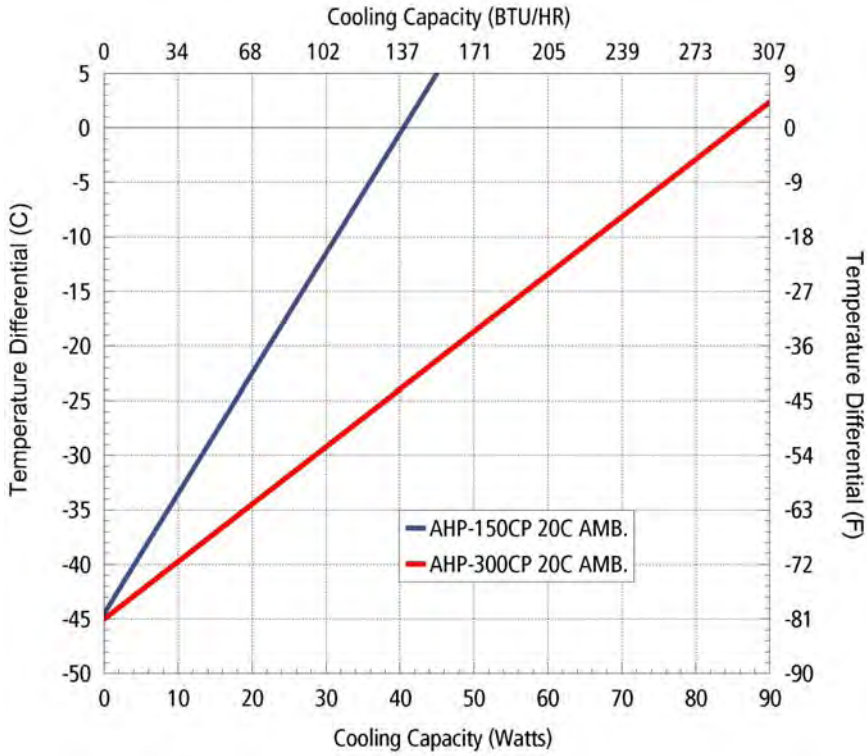
MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VDC	CURRENT AMPS.	WEIGHT LBS. (KG)	TEMP. CONTROL	OPERATING AMBIENT °C
AHP-150CP	1-8098-0-000	Cool only	140-160	12/24	6/3	2.5(1.2)	None	-10/+60
AHP-150CPHC	1-8094-1-000	Heat/Cool	140-160	12	6	2.5(1.2)	None	-10/+60
AHP-150CPHC	1-8095-1-000	Heat/Cool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

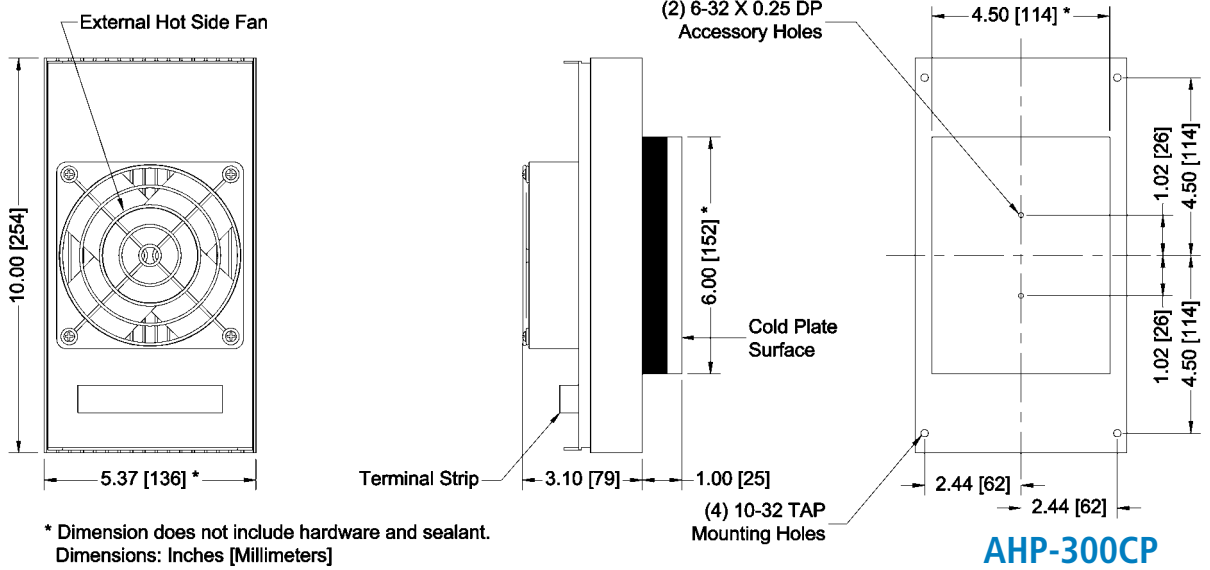
COOLING CAPACITY

40 Watts @ 0 °C ΔT (20 °C Ambient)

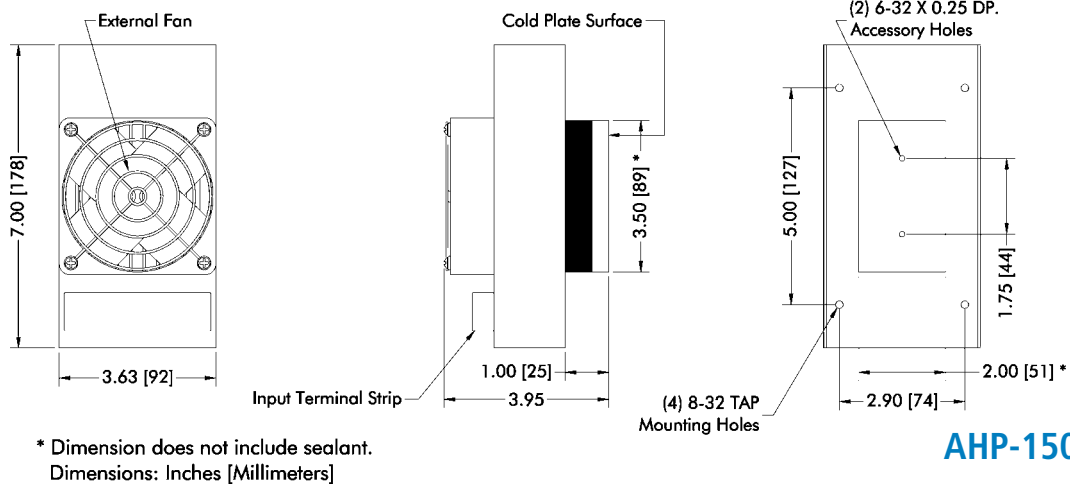
Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$

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

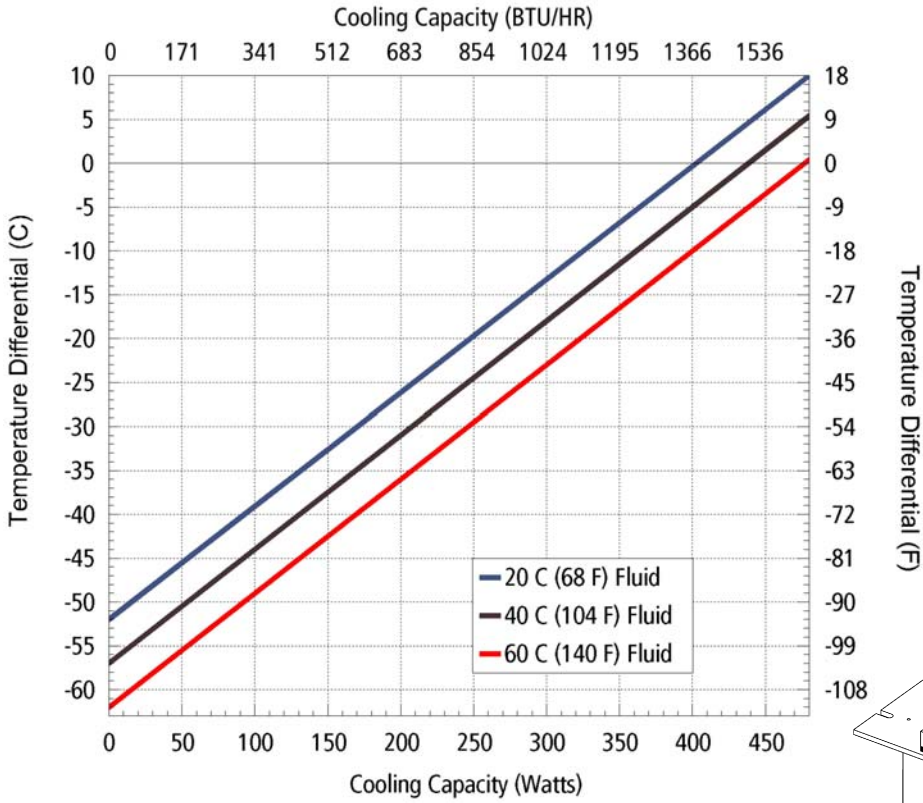
ENVIRONMENTS

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

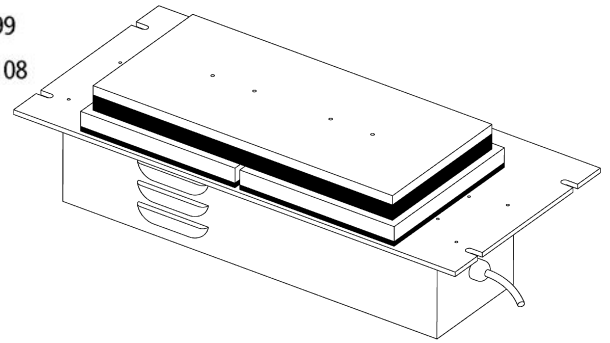
COOLING CAPACITY

440 Watts @ 0 °C ΔT

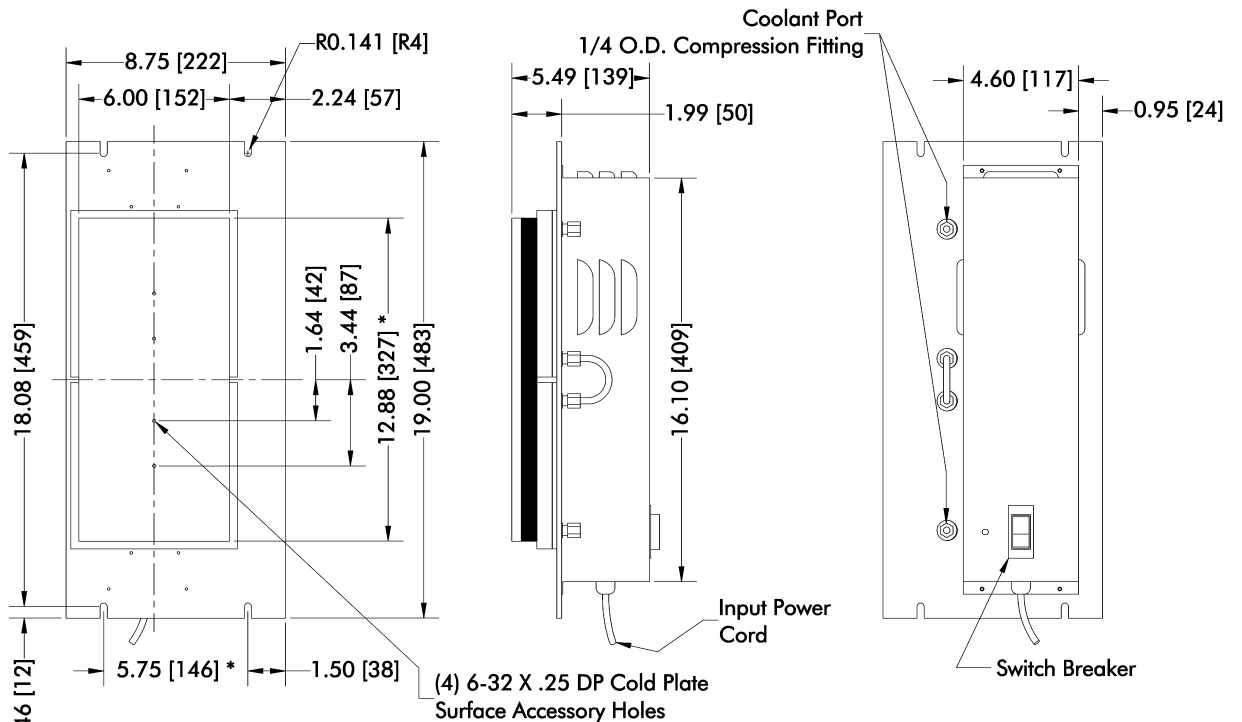
PERFORMANCE CURVE



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

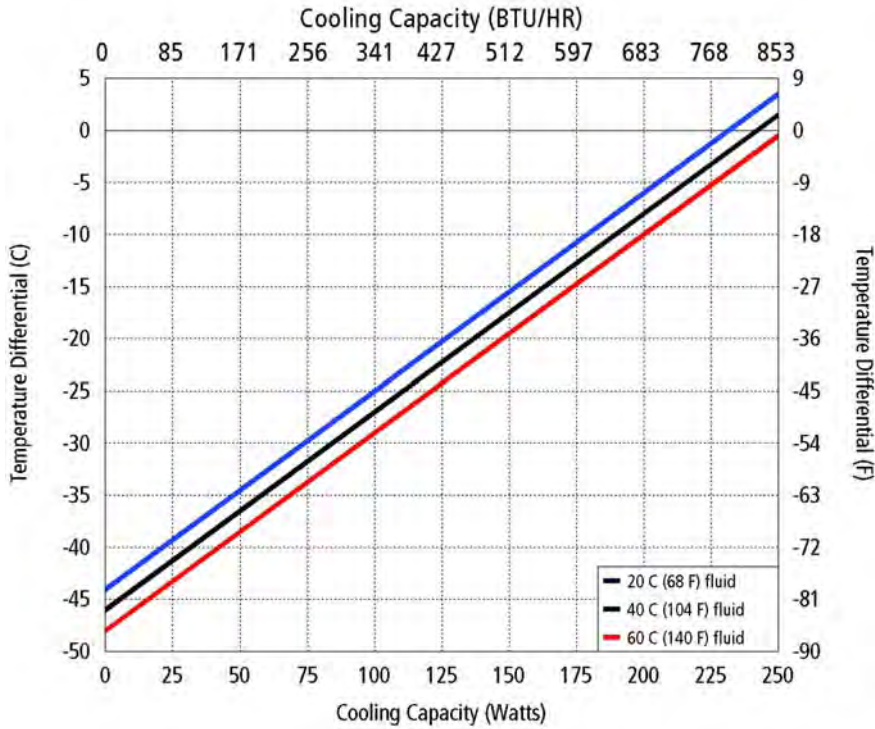
ENVIRONMENTS

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

COOLING CAPACITY

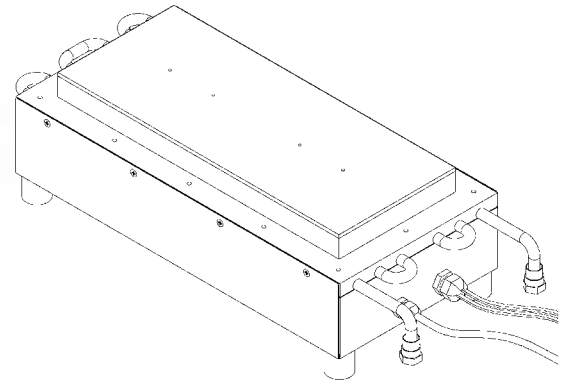
260 Watts @ 0 °C ΔT

PERFORMANCE CURVE

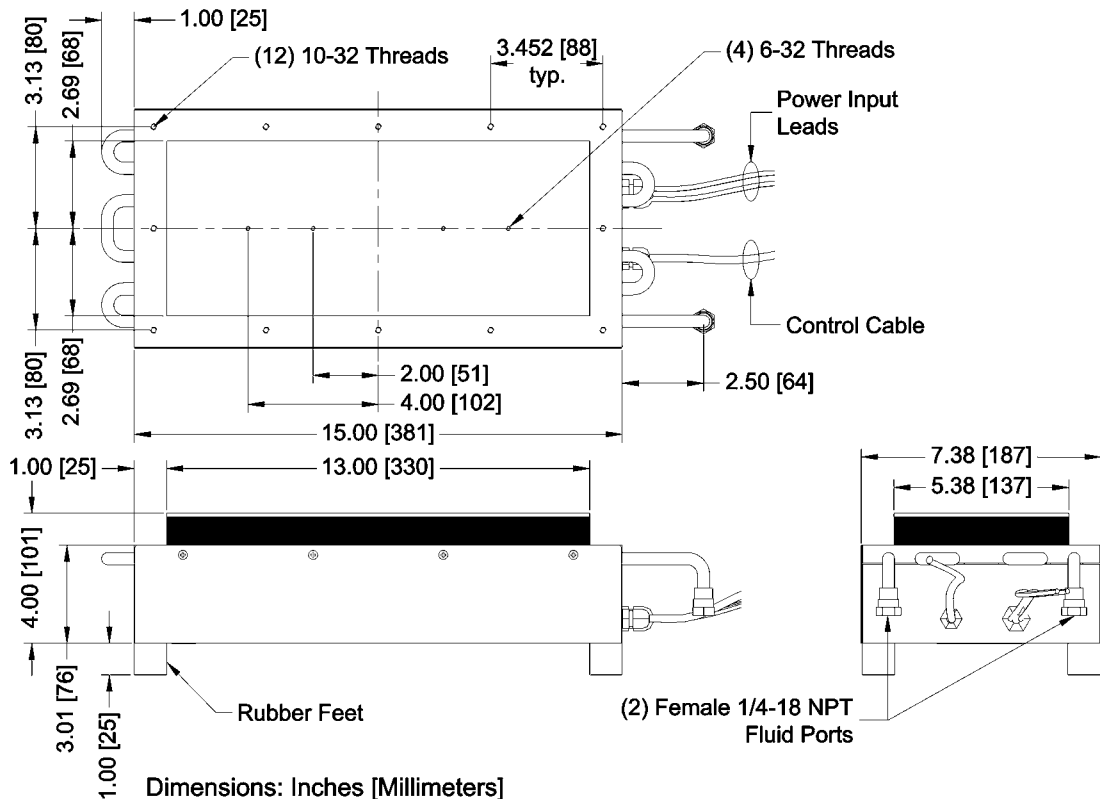


Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$

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

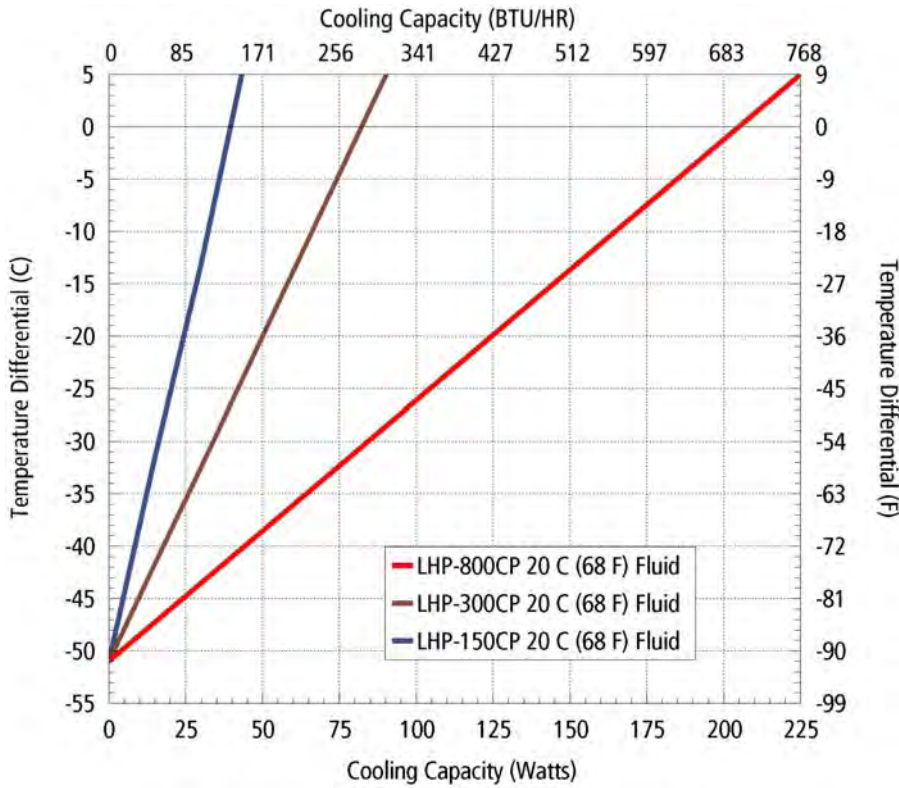
MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VDC	CURRENT AMPS.	WEIGHT LBS. (KG)	MIN FLOW GPM	OPERATING AMBIENT °C	HEAT VOLTAGE
LHP-150CP	3-8094-0-000	Heat/Cool *	130-160	12	4.5	.75(.34)	0.2	0/+70	12 VDC
LHP-150CPHC	3-8094-1-000	Heat/Cool **	130-160	12	4.5	.75(.34)	0.2	0/+70	12 VDC
LHP-150CPHC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



LHP-800CP

COOLING CAPACITY
205 Watts @ 0 °C ΔT

LHP-300CP

COOLING CAPACITY
82 Watts @ 0 °C ΔT

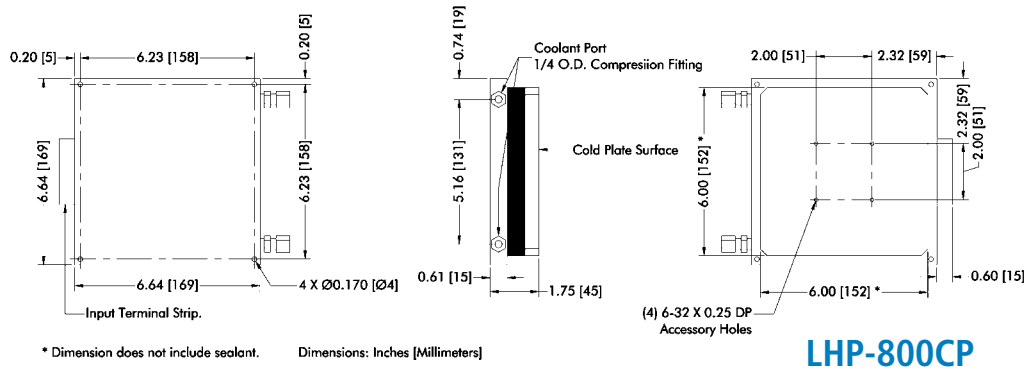
LHP-150CP

COOLING CAPACITY
40 Watts @ 0 °C ΔT

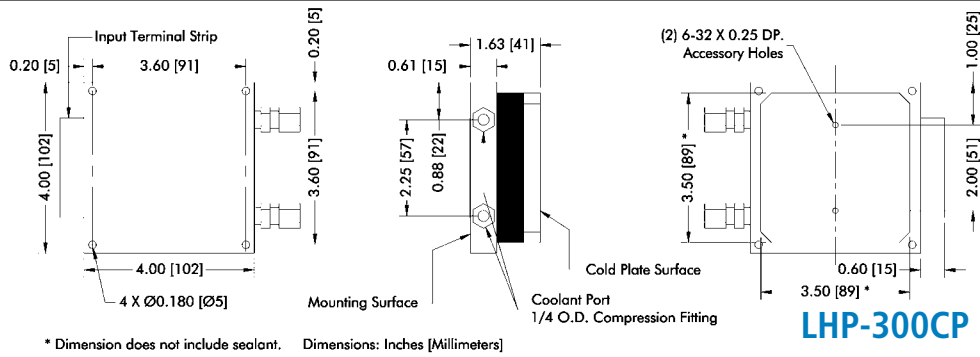
Equation of line: $y = \Delta T(°C) \quad x = \text{Capacity (Watts)}$

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	$y = 1.3x - 51.0$	$y = 1.3x - 56.0$	$y = 1.3x - 61.0$

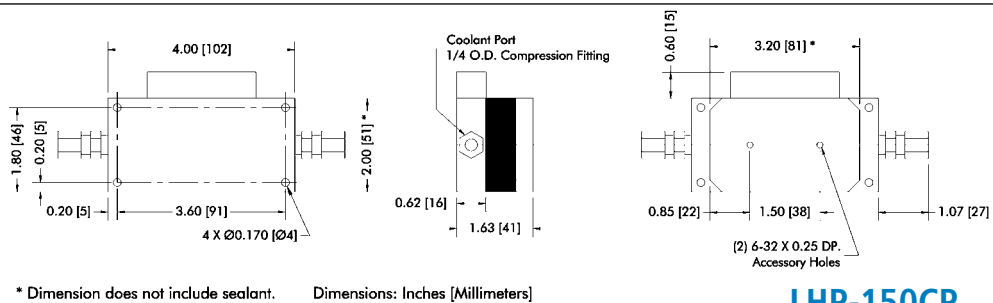
DIMENSIONS



LHP-800CP



LHP-300CP



LHP-150CP