



ADVANCED COOLING TECHNOLOGIES

The Thermal Management Experts | www.1-ACT.com

SEALED ENCLOSURE COOLING



ABOVE-AMBIENT AND SUB-AMBIENT COOLERS

THERMAL MANAGEMENT EXPERTS

ADVANCED COOLING TECHNOLOGIES, INC. IS A PREMIER THERMAL MANAGEMENT SOLUTIONS COMPANY

ACT's enclosure cooling products effectively dissipate heat from sealed electrical and electronic enclosures operating in indoor, outdoor and other types of environments. These products are applicable in diverse industries including Industrial Automation, Food Processing, Chemical, Petrochemical, Wastewater Treatment, and Telecommunications. ACT offers a high level of technical support to automation and control systems integrators and OEM's through our website selection tools, online ordering and direct field support from our factory and local technical representatives.



ONLINE SELECTION TOOL

This tool was designed by our engineering team to help you quickly and easily select the appropriate cooler for your application.



ONLINE ORDERING

Get your units fast with our convenient and easy to use online ordering platform.

PRODUCT LINE

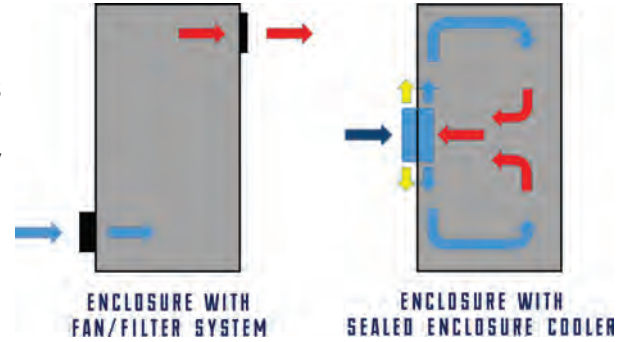
HSC SERIES	HPC SERIES	TEC SERIES	VCC SERIES
HEAT SINK COOLER HEAT EXCHANGER	HEAT PIPE COOLER HEAT EXCHANGER	THERMOELECTRIC COOLER AIR CONDITIONER	VAPOR COMPRESSION COOLER AIR CONDITIONER
			
ECONOMIC	COMPACT	ENVIRONMENTALLY FRIENDLY	HIGH POWER
Part Number ACT-HSC-22: 440 ACT-HSC-45: 900 ACT-HSC-68: 1,360 Thermal Capacity W @ 20°C ΔT	Part Number ACT-HPC-15: 300 ACT-HPC-40: 800 ACT-HPC-50: 1,000 ACT-HPC-80: 1,600 Thermal Capacity W @ 20°C ΔT	Part Number ACT-TEC-90: 90 ACT-TEC-300: 300 Cooling Capacity (Watts) at 0° C ΔT	Part Number ACT-VCC-1000-DC: 1000 ACT-VCC-2000-AC: 2,000 ACT-VCC-3000-DC: 3,000 ACT-VCC-5000-AC: 5,000 Cooling Capacity (Watts) at 0° C ΔT
PAGES 4-5	PAGES 6-7	PAGES 8-9	PAGES 10-13

WHAT IS NEMA?

The National Electrical Manufacturers Association (NEMA) is the governing body that regulates enclosure design.

International Electrotechnical Commission (IEC) standard 60529 or The IP Code, International Protection Marking, sometimes interpreted as Ingress Protection Marking (IPM), classifies and rates the degree of protection provided against intrusion (body parts such as hands and fingers), dust, accidental contact, and water for mechanical casings and electrical enclosures.

ACT's products with the UL logo are UL 50E tested and designed to meet the NEMA ratings of the applications enclosure.



NEMA Rating	IP Rating	Description
12	52	Indoor, dust tight, drip tight
4	65-66	Indoor/outdoor, hose directed water tight
4X	65-66	Same as above with corrosion resistant materials
3R	11-14	Indoor/outdoor, rain protection



IDEAL APPLICATIONS



ACT-HSC SERIES HEAT SINK COOLERS

The Heat Sink Cooler (HSC) series are passive sealed enclosure coolers consisting of two high performance, aluminum finned heat sinks bonded to the opposite sides of a common mounting plate.

- Highest performance versus cost ratio on the market
- Thin profile, *i.e.*, only 3.70" intrusion into the enclosure
- Easy to install
- Few penetrations by cover fasteners, mounting fasteners and external fan wires create optimal seal
- Dual axial ball bearing fans provide years of maintenance free operation
- 1-Year Warranty *see ACT's Terms and Conditions*

Patent Pending



HSC-22



HSC-45



HSC-68



316 STAINLESS OPTION

Part Number	Thermal Conductance Watts/°C	Thermal Capacity Watts @ 20 °C ΔT	Weight*** lbs (kg)	Height	Width	Depth
ACT-HSC-22**	22.0	440	17 (7.7)	12.00" 304.8mm	12.00" 304.8mm	7.88" 200.1mm
ACT-HSC-45	45.0	900	35 (15.8)	21.75" 552.5mm	12.00" 304.8mm	7.88" 200.1mm
ACT-HSC-68	68.0	1,360	51 (23.1)	31.38" 796.9mm	12.00" 304.8mm	7.88" 200.1mm

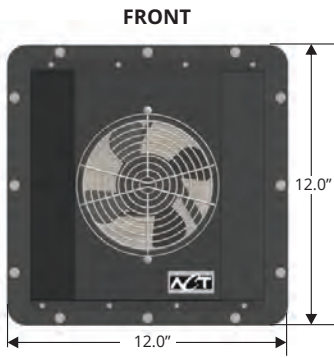
* Depth is total depth; insertion depth = 3.70" into the cabinet. See solid model for full dimension details
 ** Shows dimensions for DC model in NEMA 3R, 4, 4X versions; check the solid model for other variants.
 *** Approximate weight for powder-coated aluminum shown, contact ACT for NEMA 4X weights

ACT-HSC SERIES FEATURES AND OPTIONS

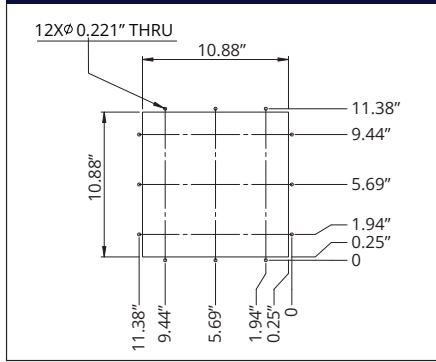
Environment	Indoor or Outdoor Use
Electrical Configuration	115VAC, 230VAC, 12VDC, 24VDC and 48VDC • AC units arrive with 6ft. long 3-pronged plug • DC units arrive with bare 6 ft. long lead wires
UL Listing & UL Recognition	The 115VAC units received a UL listing mark. All other voltage options are UL Rated/UL Recognized
NEMA Options	12, 3R, 4 and 4X, UL50E Certified
Fans	UL Listed 6.0" dual ball bearing type axial fans (dry & wet locations)
Mounting Plate	Aircraft quality 6061 aluminum
HSC Housing	Powder coated aluminum, Optional: 316 stainless steel
Mounting Options	Top, side, front, or back
Operating Temperature	Range: -10°C to +70°C (14°F to 158°F)
Expected Fan Life	>100,000 Hours at 25°C (77°F)

ACT-HSC DIMENSIONS AND INSTALLATION

ACT-HSC-22



ACT-HSC-22 ENCLOSURE CUTOUT TEMPLATE

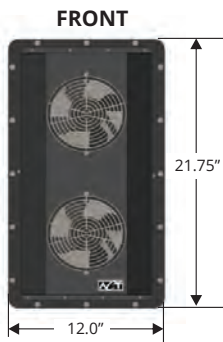


OPTIONAL ACCESSORIES

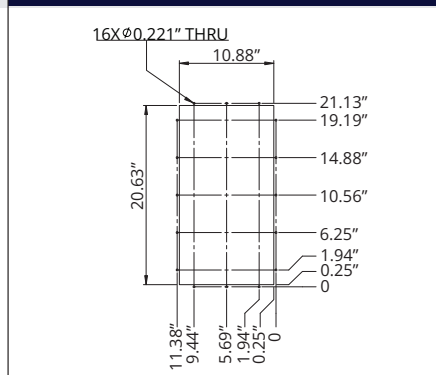


Filter Kit Options for Added Reliability

ACT-HSC-45



ACT-HSC-45 ENCLOSURE CUTOUT TEMPLATE

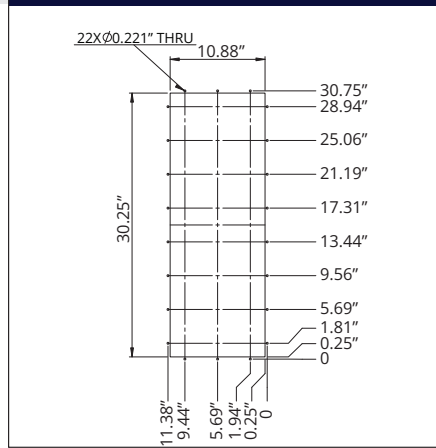


Full Range of HSC Replacement Fans

ACT-HSC-68



ACT-HSC-68 ENCLOSURE CUTOUT TEMPLATE



NEMA 3R Rain Hood Option



NEMA 3R Rain Hood Version

Available for all ACT-HSC versions

Rain guards; removable filters (only needed for excessively dirty environments, i.e. desert or coal mines)

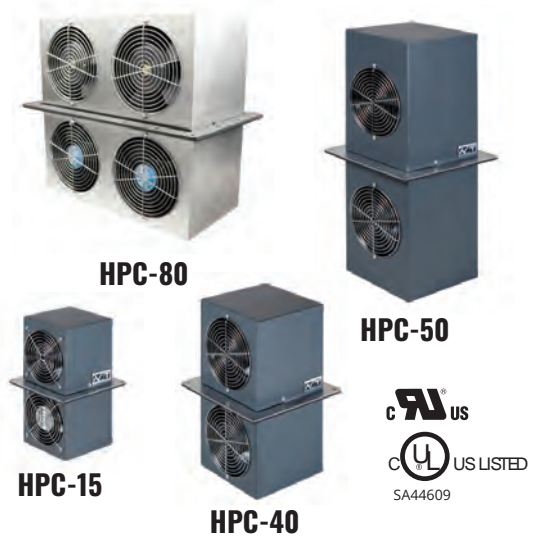
MAXIMUM CURRENT DRAW BY MODEL

		MODEL		
		ACT-HSC-22	ACT-HSC-45	ACT-HSC-68
NEMA Rating	Voltage	Maximum Operation Current in Amps	Maximum Operation Current in Amps	Maximum Operation Current in Amps
4X, 4, 3R (12)	12VDC	3.60 (3.90)	7.20 (7.80)	10.80 (11.70)
4X, 4, 3R (12)	24VDC	3.44 (1.66)	3.28 (3.32)	4.92 (4.98)
4X, 3R (12)	48VDC	0.88 (0.92)	1.76 (1.84)	2.64 (2.76)
4X, 4, 3R, 12	115VAC	0.72	1.44	2.16
4X, 4, 3R, 12	230VAC	0.38	0.76	1.14

ACT-HPC SERIES HEAT PIPE COOLER

The Heat Pipe Cooler (HPC) series are passive sealed enclosure coolers consisting of a heat pipe heat exchanger core with advanced fin features for enhanced heat transfer performance,

- Optimized for high performance/volume ratios
 - Best performance when installed vertically through the top wall (roof) of the enclosure
 - Performance may decrease slightly when installed horizontally through a side wall of the enclosure (Contact ACT for details)
- Easy to install
- Smaller opening footprint on the enclosure wall than the HSC-series
- Dual axial ball bearing fans provide years of maintenance free operation
- 1-Year Warranty (See ACT's Terms and Conditions)



316 STAINLESS OPTION

Part Number	Thermal Conductance Watts/°C	Thermal Capacity Watts @20°C ΔT	Weight* lbs (kg)	Height	Width	Depth	Insertion Depth	Mounting Plate
ACT-HPC-15	15.0	300	7 (3.2)	11.30" 287.0mm	5.43" 137.9mm	5.36" 136.1mm	5.63" 143.0mm	6.75" x 6.75" 171.5mm x 171.5mm
ACT-HPC-40	40.0	800	17 (7.72)	15.00" 381.0mm	7.93" 201.4mm	7.90" 200.7mm	7.47" 189.7mm	10.0" x 10.0" 254.0mm x 254.0mm
ACT-HPC-50	50.0	1,000	27 (12.2)	22.00" 558.8mm	7.93" 201.4mm	7.90" 200.7mm	10.97" 278.6mm	10.0" x 10.0" 254.0mm x 254.0mm
ACT-HPC-80	80.0	1,600	37 (16.8)	15.00" 381.0mm	15.43" 391.9mm	7.90" 200.7mm	7.47" 189.7mm	10.0" x 17.5" 254.0mm x 444.5mm

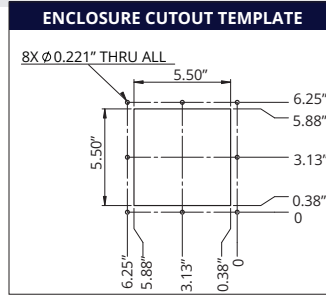
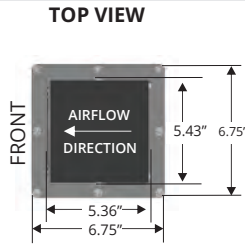
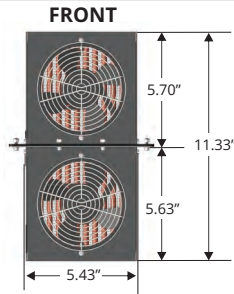
* Approximate weight for powder-coated aluminum shown, contact ACT for NEMA 4X weights

ACT-HPC SERIES FEATURES AND OPTIONS

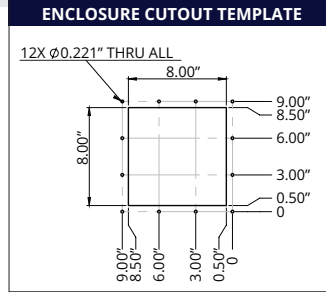
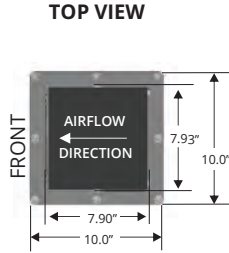
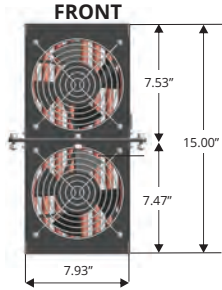
Environment	Indoor or Outdoor Use
Electrical Configuration	115VAC, 230VAC, 12VDC, 24VDC and 48VDC • AC units arrive with 6ft. long-pronged plug • DC units arrive with bare 6 ft. long lead wires
UL Listing & UL Recognition	The 115VAC units received a UL listing mark All other versions are UL Rated/UL Recognized.
NEMA Options	12, 3R, 4 and 4X, UL50E Certified
Fans	UL Listed 4.0" and 6.0" dual ball bearing type axial fans (dry & wet locations)
Mounting Plate	304 stainless steel
HPC Housing	Powder coated aluminum, Optional: 316 stainless steel
Mounting Options	Top (best performance), side, front or back (derated performance)
Operating Temperature	Range -10°C to +70°C (14°F to 150°F)
Expected Fan Life	>100,000 Hours at +25°C (77°F)

ACT-HPC SERIES HEAT PIPE COOLERS

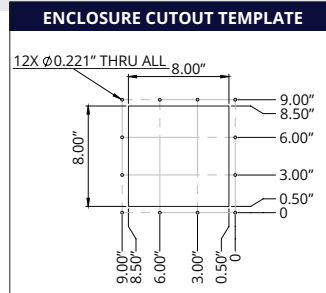
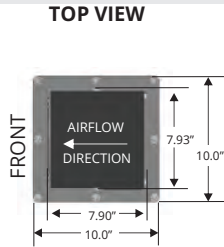
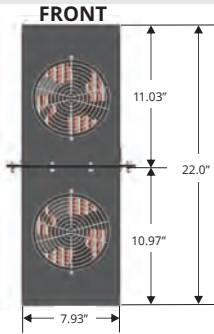
ACT-HPC-15



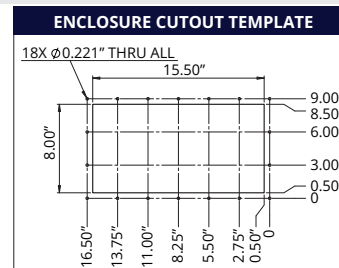
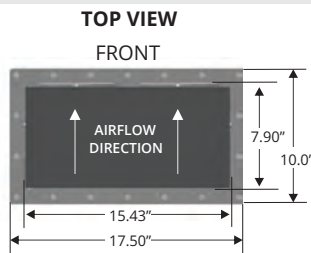
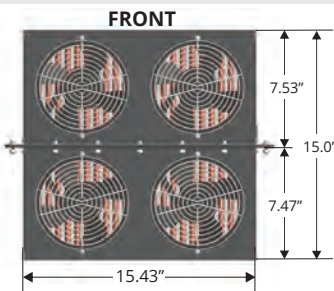
ACT-HPC-40



ACT-HPC-50



ACT-HPC-80



OPTIONAL ACCESSORIES



Filter Kit Options for Added Reliability



Full Range of HPC Replacement Fans



NEMA 3R Rain Hood Option

Available for all ACT-HPC versions



Wedge to Provide Tilt

Rain guards; removable filters (only needed for excessively dirty environments, i.e. desert or coal mines)

MAXIMUM CURRENT DRAW BY MODEL

		MODEL			
NEMA Rating	Voltage	ACT-HPC-15	ACT-HPC-40	ACT-HPC-50	ACT-HPC-80
		Maximum Operation Current in Amps	Maximum Operation Current in Amps	Maximum Operation Current in Amps	Maximum Operation Current in Amps
4, 4X, 3R (12)	12VDC	1.80	3.60 (3.90)	3.60 (3.90)	7.20 (7.80)
4, 4X, 3R (12)	24VDC	0.92	1.64(1.66)	1.64 (1.66)	3.28 (3.32)
4, 4X, 3R (12)	48VDC	0.52	0.88 (0.92)	0.88 (0.92)	1.76 (1.84)
4, 4X, 3R, 12	115VAC	0.60	0.72	0.72	1.44
4, 4X, 3R, 12	230VAC	0.28	0.38	0.38	0.76

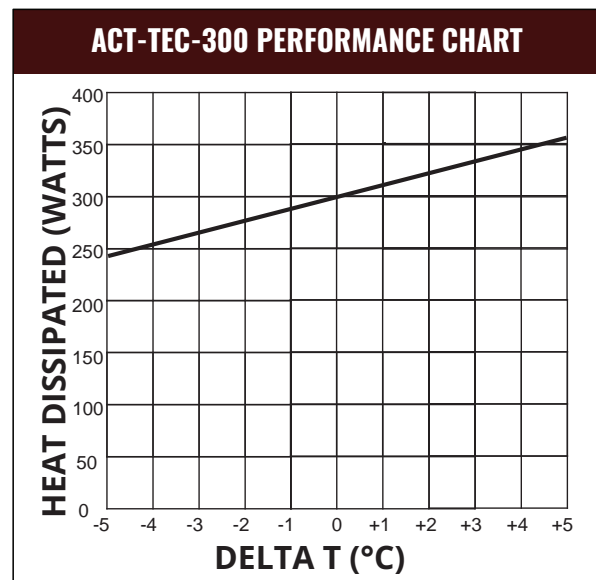
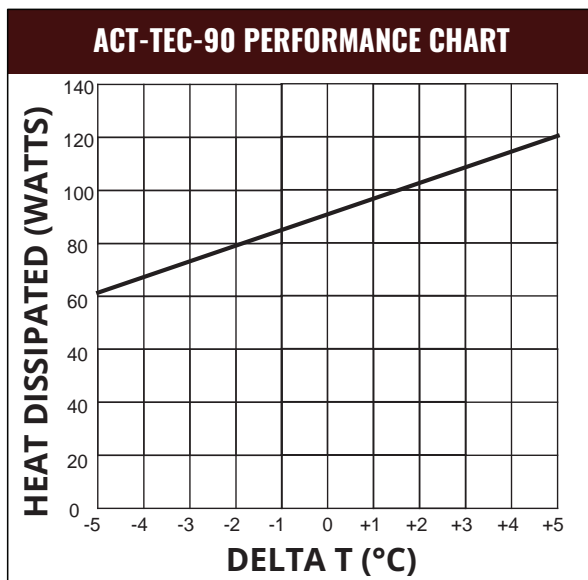
ACT-TEC SERIES THERMOELECTRIC COOLERS

The Thermoelectric Coolers (TEC) series are compact solid state air conditioners. These designs use peltier cooling which can provide efficient and reliable long term operation for low power applications. ACT-TEC's meet industrial requirements for operation 24 hours a day, seven days per week. With no refrigerant, minimal maintenance expected over a long life.

- Reliable: No compressors, refrigerants or pumps
- Powder coated aluminum construction
- Units are configured for cooling mode, an additional heating mode is available upon request.
- Operating voltages of 24VDC, 115VAC, and 230VAC
- Built-in temperature control with adjustable thermostat
- Low vibration, long life dual ball bearing fans; with over 100,000 hours of continuous operation.
- Wash-down spray-down applications
- 1-Year Warranty *see ACT's Terms and Conditions*



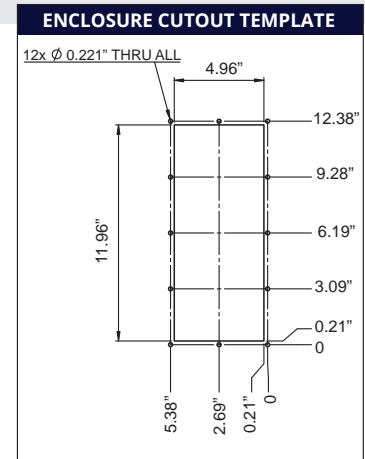
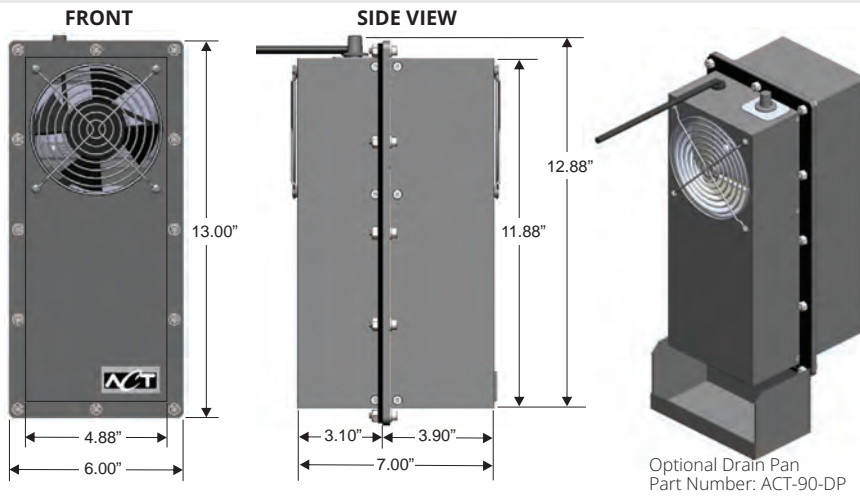
Part Number	Cooling Capacity Watts/ BTU's At 0°C ΔT	Operating Voltage Ranges	Weight lbs (kg)	Height	Width	Depth**	Insertion Depth	Mounting Plate
ACT-TEC-90	90/300	24VDC, 115VAC, 230VAC	13 (5.9)	11.88" 301.8mm	4.88" 124.0mm	7.00" 177.8mm	3.10" 78.7mm	13.00" x 6.00" 330.2mm x 152.4mm
ACT-TEC-300	300/1,000	24VDC, 115VAC, 230VAC	50 (22.7)	18.88" 479.6mm	12.50" 317.50mm	8.0" 203.2mm	3.25" 82.6mm	20.00" x 13.75" 508.0mm x 349.3mm



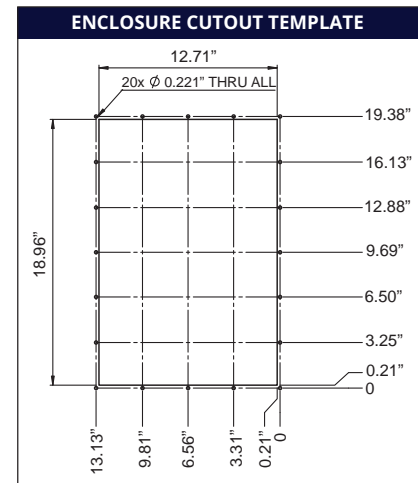
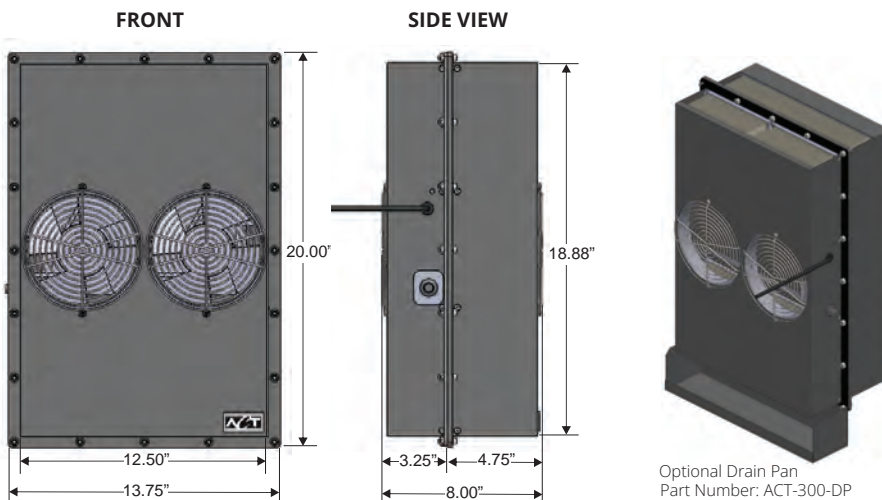
Note: Delta T is the temperature difference between the inside enclosure temperature to the outside enclosure temperature

ACT-TEC DIMENSIONS AND INSTALLATION

ACT-TEC-90



ACT-TEC-300



ACT-TEC SERIES FEATURES AND OPTIONS

Operating Temperature Range	-10°C to 50°C, higher/ranges available on request
NEMA Rating	NEMA 4
Mounting Plate	Powder coated aluminum : RAL 7043
TEC Housing	Powder coated aluminum : RAL 7043
Mounting Options	Side mounted standard, flush mounting optional versions
Weight	ACT-TEC-90 = 13 lbs. and ACT-TEC-300 = 50 lbs.
Accessories	(Optional) Condensate drip pan

Note: ACT-TEC standard units are configured for cooling mode. An additional heating mode and other operating temperatures or voltages are available upon request.

ACT-VCC SERIES VAPOR COMPRESSION COOLERS

The Vapor Compression Cooler series offer an industry-leading combination of performance and efficiency. With indoor air temperature control and a IP55 seal, these Air Conditioners can be integrated into harsh environments and still provide a cool and clean operating space for your electronics. With their plug-and-play design and readily available inventory, you can quickly and easily integrate ACT's Air Conditioners into your electronics cabinet.

- Harsh Environment Capability (IP55)
- Plug-and-play capability which ensures fast and effective set-up.
- A flanged design is incorporated for convenient through-wall (or cabinet door) mounting
- 1-Year Warranty (see ACT's Terms and Conditions) with an expected 10 year lifetime



ACT-VCC-1000



ACT-VCC-3000

Custom color match available with additional lead time.

Part Number	Cooling Capacity @35C/35C	Voltage(type)	Weight: lbs (kg)	Height	Width	Depth
ACT-VCC-1000-DC	1000W	48V (DC)	46 (21)	31.22" 793mm	15.00" 381mm	6.89" 175mm
ACT-VCC-2000-AC	2000W	220-240V (AC)	71 (32)	29.33" 745mm	17.52" 445mm	7.87" 200mm
ACT-VCC-3000-DC	3000W	48V (DC)	104 (47)	45.30" 1150mm	19.09" 485mm	8.86" 225mm
ACT-VCC-5000-AC	5000W	220 -240V (AC)	154 (70)	51.18" 1300mm	23.62" 600mm	11.81" 300mm

ACT-VCC SERIES FEATURES AND OPTIONS

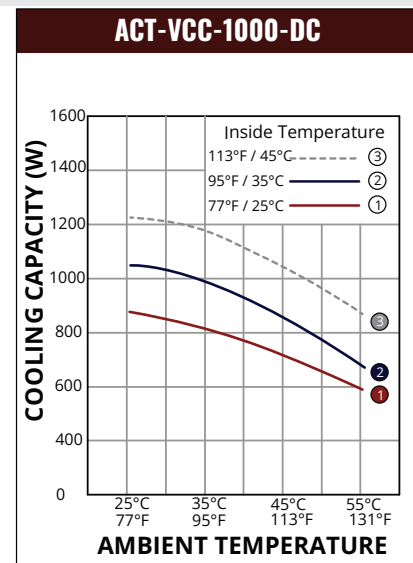
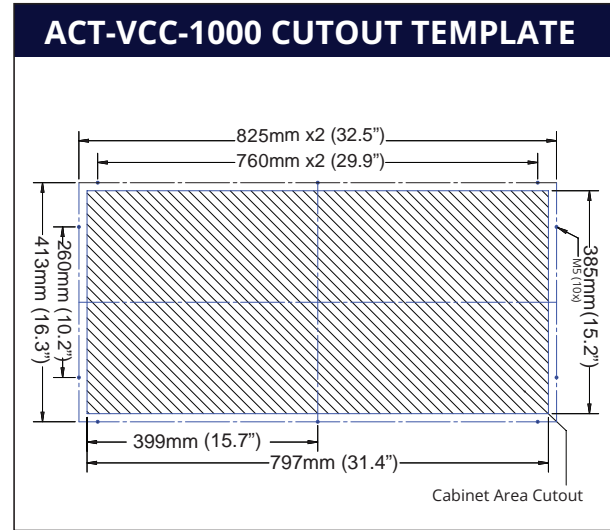
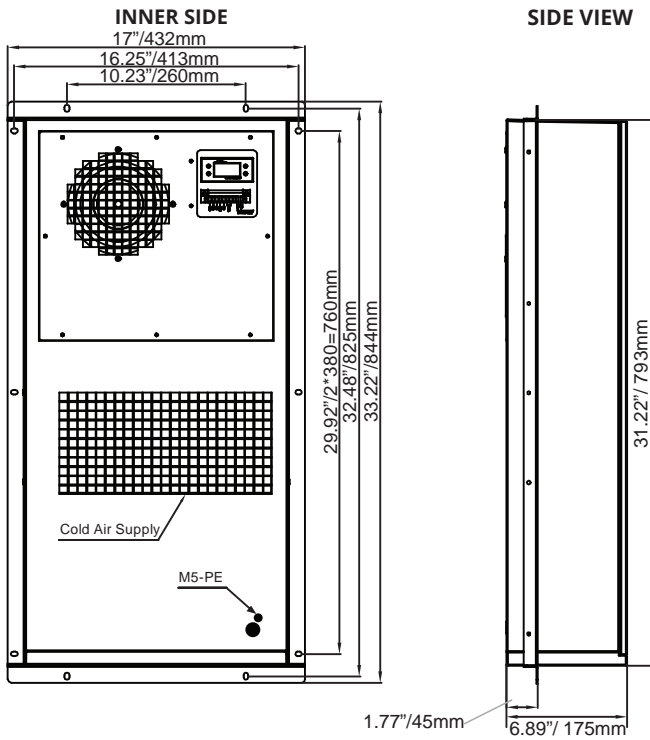
Environment	Indoor or Outdoor Use
Electrical Configuration	220-240VAC and -48VDC (all units arrive with bare lead wires)
Seal Rating	IP55
VCC Housing	Powder coated aluminum: Dark Grey 6061
Mounting Options	Designed for door mounting, but can mount to the side or back walls if access
Operating Temperature Range	-15°C to +55°C (5°F to 131°F)
Display	LED
Refrigerant	R134a

*DC units are wired for Negative 48 Volt connection.

** Insertion Depth: all models extend 1.77"/45mm into the enclosure

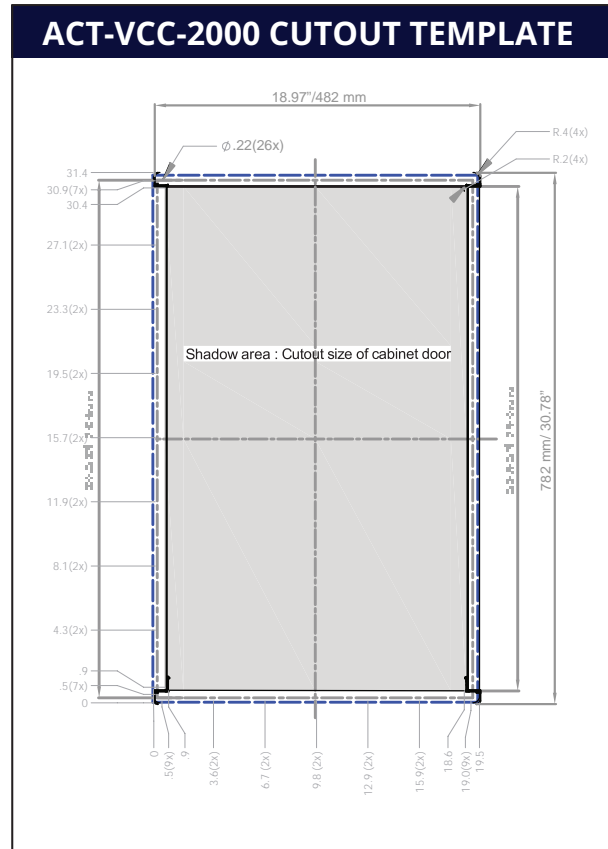
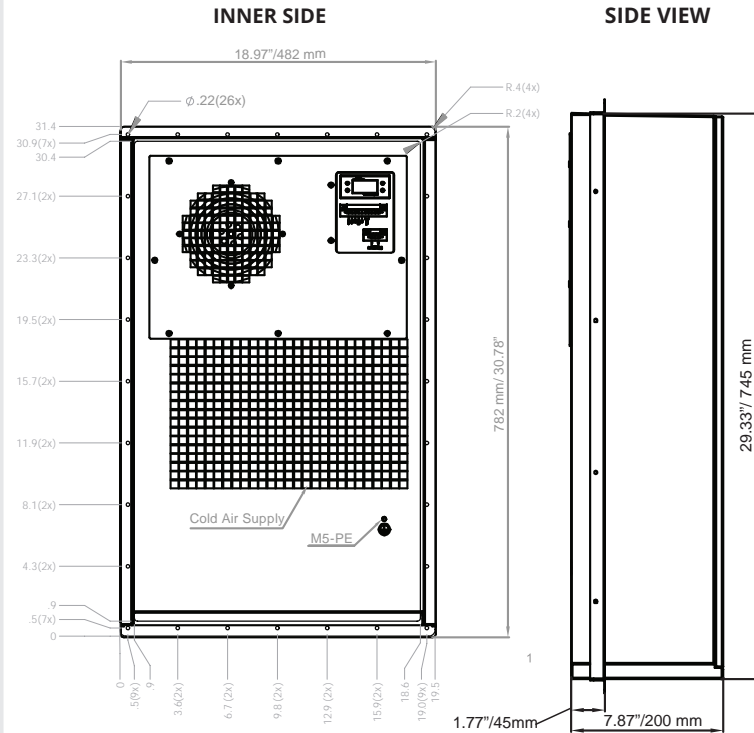
ACT-VCC-SERIES DIMENSIONS & INSTALLATION

ACT-VCC-1000-DC 3,400 BTU/hr

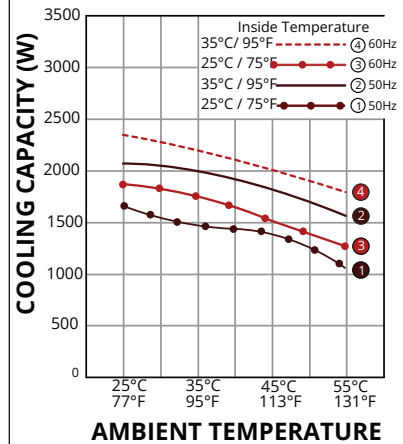


ACT-VCC-SERIES DIMENSIONS & INSTALLATION

ACT-VCC-2000-AC 6,800 BTU/hr

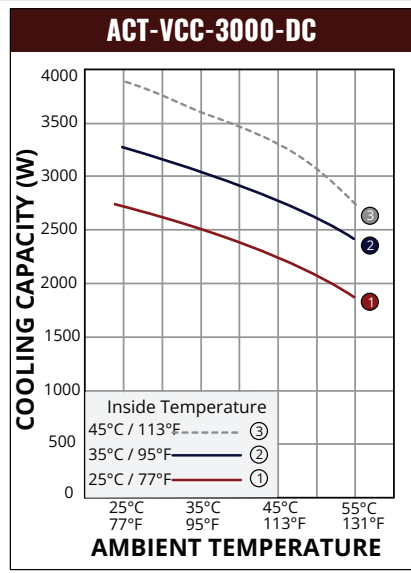
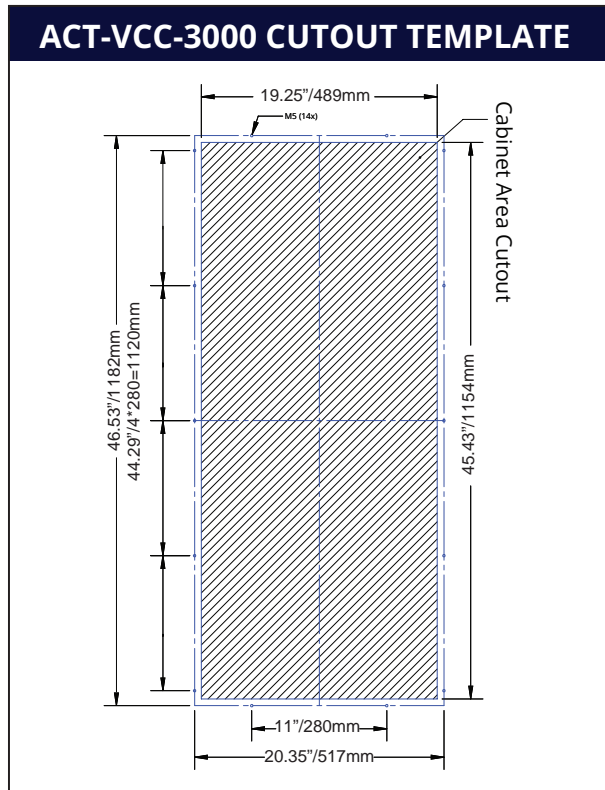
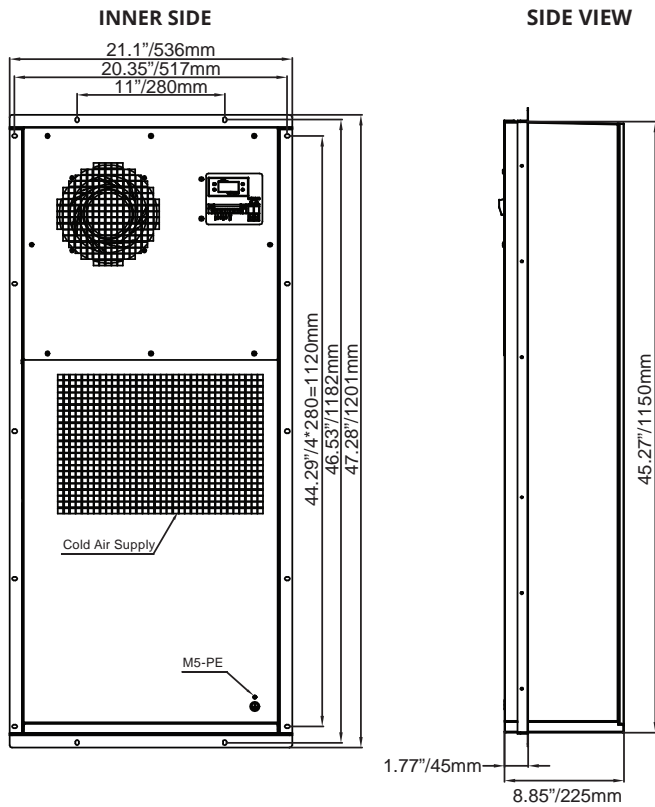


ACT-VCC-2000-AC



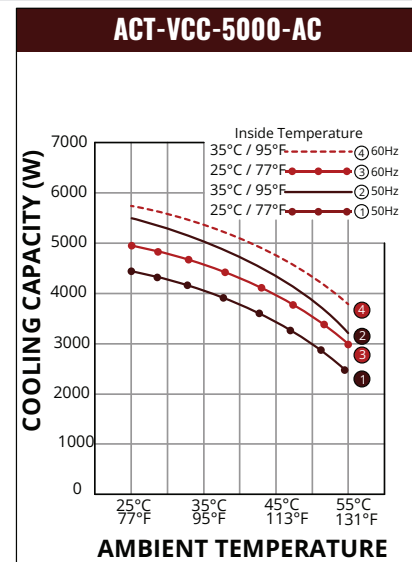
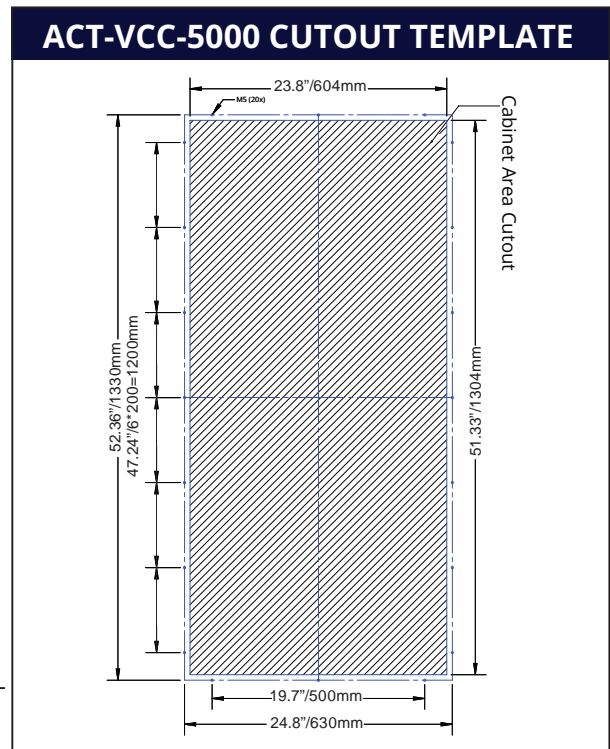
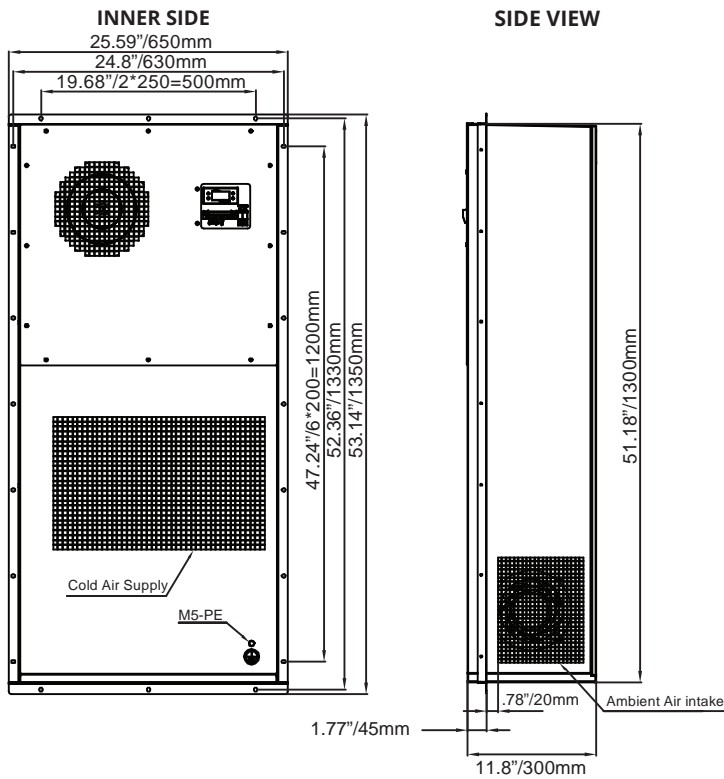
ACT-VCC-SERIES DIMENSIONS & INSTALLATION

ACT-VCC-3000-DC 10,230 BTU/hr

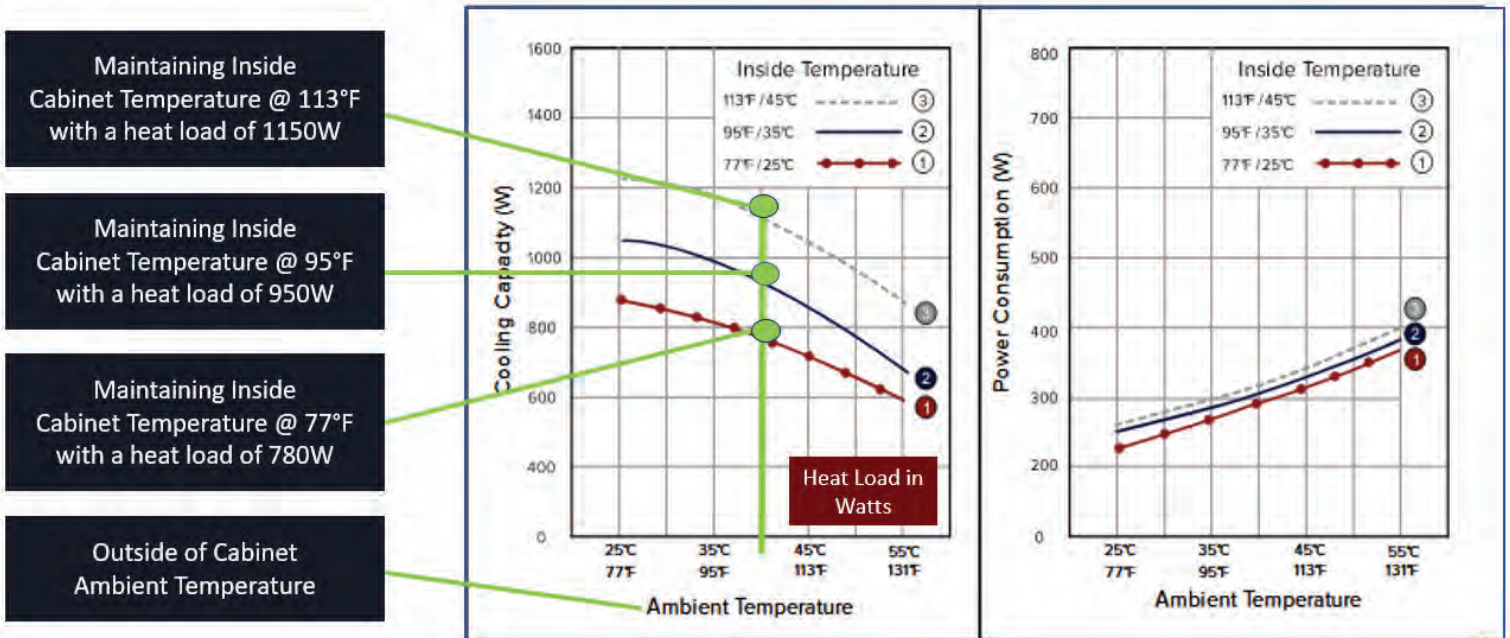


ACT-VCC-SERIES DIMENSIONS & INSTALLATION

ACT-VCC-5000-AC 17,000 BTU

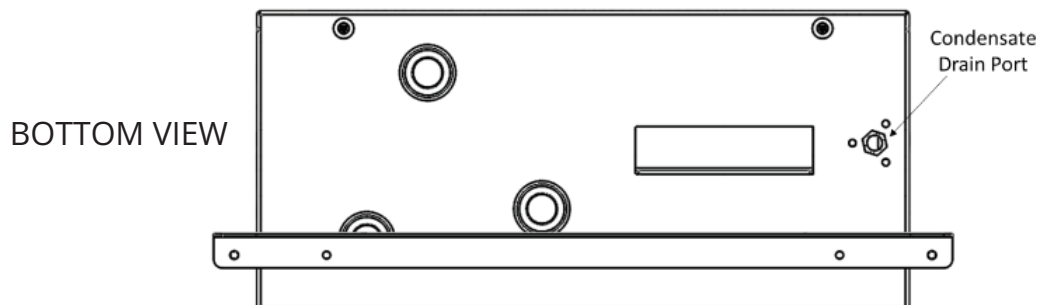


HOW TO READ THE PERFORMANCE CHART



CONDENSATE CONSIDERATIONS

- During normal operation in a humid environment, the unit may produce condensate on the evaporator coil inside of the casing
- A condensate drain port is provided on the bottom of the unit
 - Condensate will naturally flow out of this port under normal operating conditions, if it is not permissible for certain applications for water to drain directly out of this port, a fitting is provided for connection of an appropriately sized drain tube to relocate condensate to an available drain.
 - Most applications will produce less than 150mL/hr or 5oz/hr of condensate, tubes should be sized accordingly.



QUESTIONS?

CALL: 717-295-6061

EMAIL: ECSALES@1-ACT.COM

Files available for download online:

- STEP files
- DXF files
- Install Manuals



ONLINE SELECTION TOOL

This tool was designed by our engineering team to help you quickly and easily select the appropriate cooler for your application.



ONLINE ORDERING

Get your units fast with our convenient and easy to use online ordering platform.



ADVANCED COOLING TECHNOLOGIES

1046 New Holland Avenue
Lancaster, PA 17601, USA

MARKETS

Avionics/Aircraft
Electronics Cooling
Enclosure Cooling
HVAC Energy Recovery
Materials Processing
Medical
Military
Photonics
Power Electronics
Solar
Spacecraft Thermal Control
Temperature Calibration & Control
Transportation

PRODUCTS

Heat Pipes for Thermal Management
Spacecraft Thermal Control
Embedded Computing Solutions
Pumped Two-Phase Cooling (P2P)
Phase Change Material (PCM) Heat Sinks
Tekgard ECUs & Chillers
Sealed Enclosure Coolers
HVAC Heat Exchangers
Loop Thermosyphon
ICE-Lok™ (Isothermal Card Edge wedgelock)
Liquid Cold Plates - Custom
Furnace Liners (IFLs) and Blackbody Cavities
Custom Thermal and Mechanical Systems

RESEARCH & DEVELOPMENT

THERMAL TECHNICAL SERVICES

ISO 9001 & AS9100 Certified | ITAR Registered

www.1-ACT.com