



**ADVANCED COOLING TECHNOLOGIES**

The Thermal Management Experts | [www.1-ACT.com](http://www.1-ACT.com)

# SEALED ENCLOSURE COOLING

## ABOVE AMBIENT COOLING



ACT-TEC-90

**DFX AND STEP  
FILES AVAILABLE**

# ACT-TEC-90 THERMOELECTRIC COOLER INSTALLATION GUIDE

## CAUTION

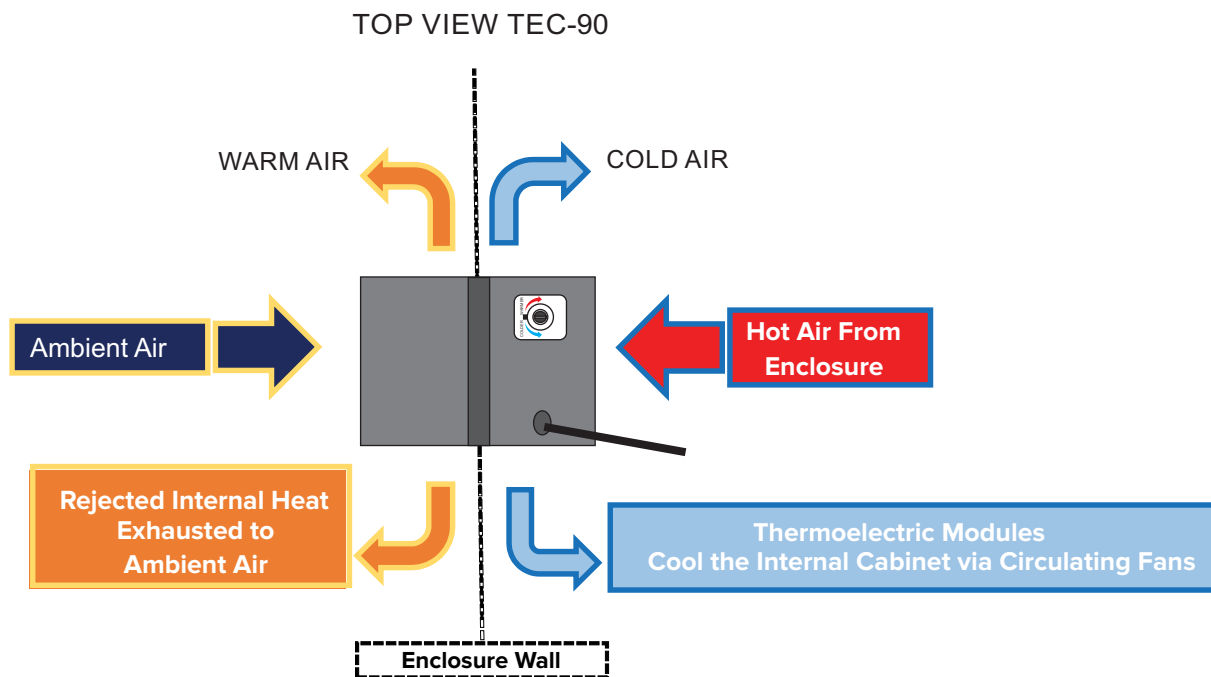
BEFORE INSTALLING AND USING THE ACT-TEC PRODUCT, IT IS IMPORTANT THAT THIS MANUAL BE READ AND UNDERSTOOD THOROUGHLY.

The ACT-TEC 90 Thermoelectric Air Conditioners series are compact, solid state air conditioners. They cool the internal enclosure space with highly reliable Peltier cooling. The Peltier cooling cycle involves no moving parts, compressors, CFC refrigerants or circulating liquid. They provide reliable cooling twenty four hours per day, seven day per week, even in the toughest environments.

ACT-TEC units can be used in wash-down spray-down applications or mounted directly to outdoor cabinets to operate flawlessly year round. Standard stocked units are available in several weeks. Dual mode operation of cooling and heating are available.



*The ACT-TEC-90 can be mounted on the control cabinet in any desired orientation*



*Top View of the ACT-TEC-90 with arrows showing the airflow patterns of the internal and external air streams*

## WARNING

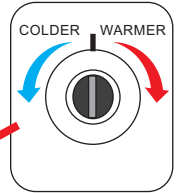
TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY, PLEASE OBSERVE THE FOLLOWING: Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.

## ACT-TEC-90 Temperature Adjustment

The ACT-TEC-90 Thermoelectric Cooler has an integrated temperature potentiometer located on the inside enclosure side of the unit. It can be found just below the power cord lead.

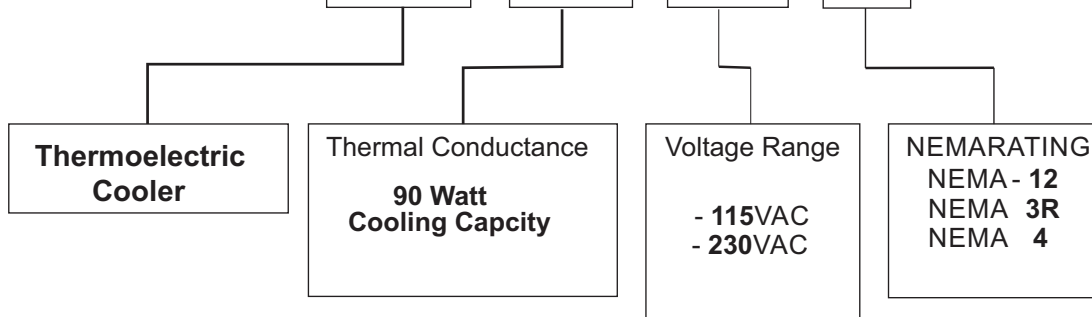
The potentiometer features a slot to support a blade screwdriver. Turning the potentiometer counter clockwise increases the cooling capacity.

The ACT-TEC-90 is also available with an optional drip pan *Page 8*. This is required in certain high humidity environments. The drip pan is optional but requires a sealed hole be drilled through the cabinet to route a small 1/4" drain hose. The hose should be sealed around the through hole that was drilled with water resistant silicon sealer



## ACT-TEC PART NUMBER DESCRIPTION

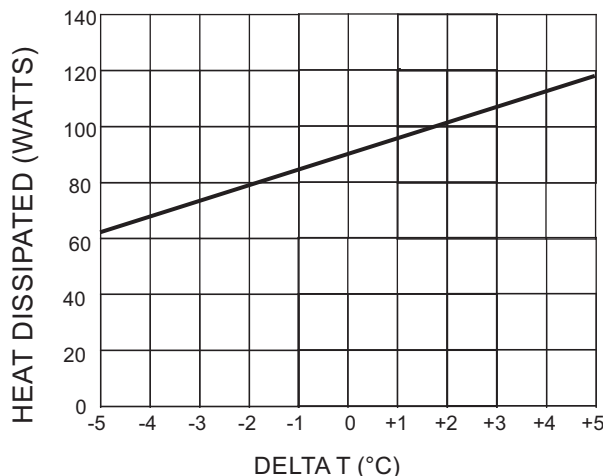
**ACT - TEC - 90 - 115 - 12**



## ACT-TEC-90 Thermoelectric Cooler Series Capacities & Dimensions

Part Number	Cooling Capacity Watts/BTU's at 0°C *Delta T	Operating Voltage Ranges	NEMA Rating	W (in")	D (in")	Insertion Depth (in")	Mounting Plate (in")
<b>ACT-TEC-90</b>	90/300	115VAC, 230VAC	12, 3R, 4	4.88	7.0	3.10	13.0" x 6.0"

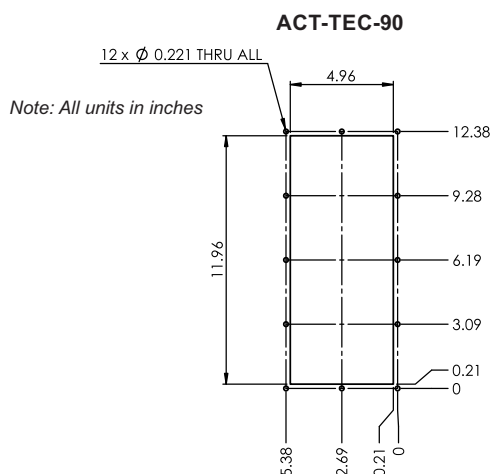
## ACT-TEC 90 Performance Chart



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

## ACT-TEC-90 Series Current Draw Chart & Enclosure Cutouts

ACT-TEC-90-115	ACT-TEC-90-230
115VAC	230VAC
1.8 Amps	0.8 Amps



# INSTALLATION PROCEDURE

Check for any damage to the box that the unit was shipped in. Remove all shipping foam and inspect the unit for external damage. Any sign of damage should be documented and reported to the carrier.

Assuming there is no visible damage, stand the unit up vertically so that both air streams are clear and plug the unit into a power source to verify that the internal and external fan(s) are operational. After successfully completing this quick test, the ACT- TEC-90 unit is ready for installation.

The following assembly procedure details the installation of a sealed enclosure cooler to the wall of an electronics enclosure.

**Step 1:** Determine the location of the cooler on the enclosure. The ACT-TEC-90 can be top or side mounted. Ensure that you have at least 6” of open space between the fan intake and the next closest enclosure or wall. When you have decided on a location, use masking tape to outline the square cutout, see figure 2. The cutout dimensions are shown in the drawings in Appendix A and are available for download in .DXF or SOLIDWORKS® format from the ACT- Enclosure Cooling Resources area of our website. Start by using a hole saw to establish holes in each corner. Use a reciprocating saw to make straight cuts between the corner holes, using the masking tape as a reference edge and to minimize damage to the enclosures surface.

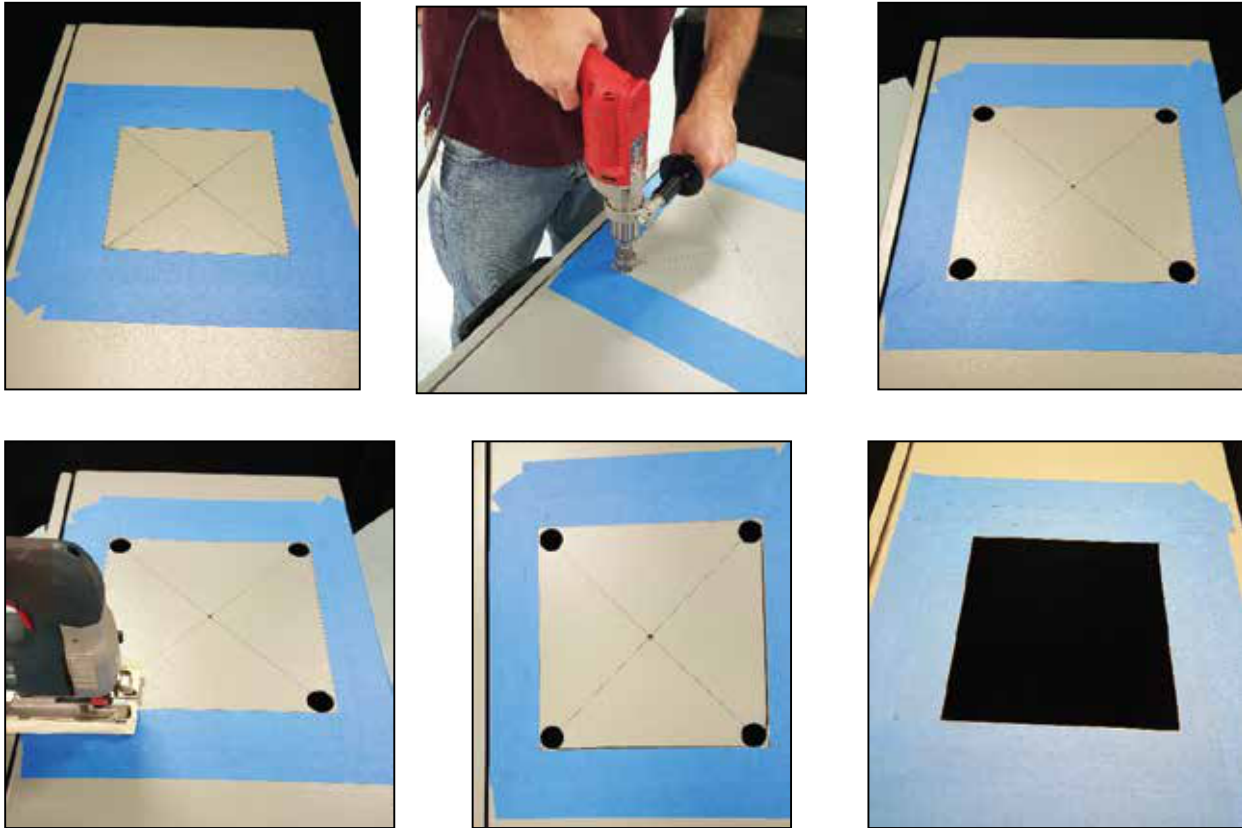
## CAUTION

The risk of fire, electric shock or injury exists when installing, cleaning or performing maintenance on the ACT-TEC unit. ALWAYS DISCONNECT the ACT-TEC from the power supply during installation or prior to servicing.

## WARNING

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY,  
PLEASE OBSERVE THE FOLLOWING:  
Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.

# INSTALLATION PROCEDURE



**Step 2:** Use the edge of the cutout as a reference edge and plot out the perimeter hole locations according to the drawing shown below in Appendix A. Once the holes have been marked, drill the remaining mounting holes at the correct location.

**Step 3:** Deburr the edges of the cutout using a file. Deburr the holes using a countersink bit.

## Risk of injury

Carefully deburr all drilled holes and cut-outs to prevent injuries caused by sharp edges.

**Step 4:** Remove the masking tape and clean any excess cutting oil from the surface/internals of the enclosure.

**Step 5:** Place the ACT-TEC in position on the wall of the enclosure. The electrical cord should be passed through the opening in the enclosure prior to inserting the TEC body through the cutout. The ACT-TEC should be oriented so the gasket contacts the outside surface of the enclosure. Ensure that the gasket surface is free of dust, dirt, and imperfections and that it makes consistent contact with the external surface of the enclosure.

**Step 6:** With the ACT-TEC held in place, install the fastening bolts around the perimeter flange of the ACT-TEC. Make sure the sealing washer is properly located on the bolt as shown in below. The sealing washer is meant to washer is properly located on the bolt as shown in below. The sealing washer is meant to seat on the external face of the ACT-TEC (the face opposite the gasket).

# INSTALLATION PROCEDURE

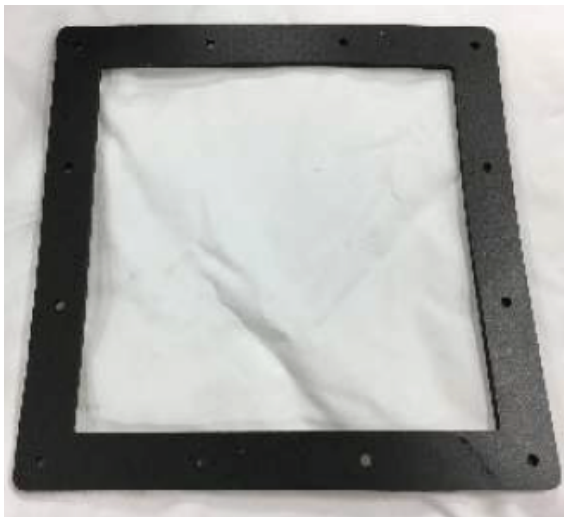
## Caution

ACT recommends applying an anti-seize lubricant to the threads of the mounting hardware to prevent galling.

For the ACT-TEC-90 model this step should be completed by two people. (one person can hold the ACT-TEC in place while the other person installs the hardware. the HSC in place while the other person installs the hardware).



*Perimeter bolt with sealing washer and locking nut (left)  
perimeter bolts installed on enclosure after being  
torqued down.*



**Step 7:** Torque the perimeter bolts evenly, alternating between bolts in a diagonal pattern so that the sealing gasket is compressed in an even fashion. Ensure that every bolt is torqued to at least 20 in-lbs.

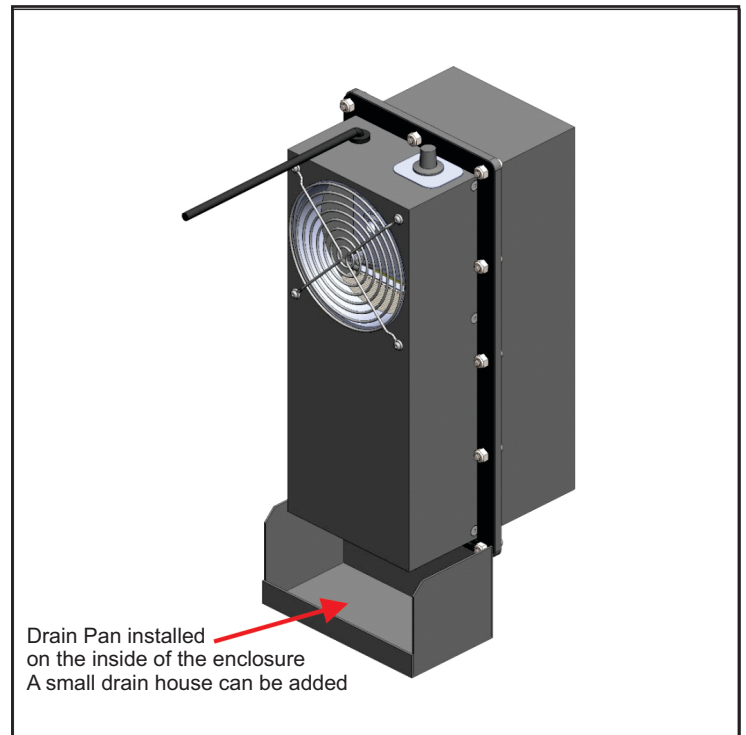
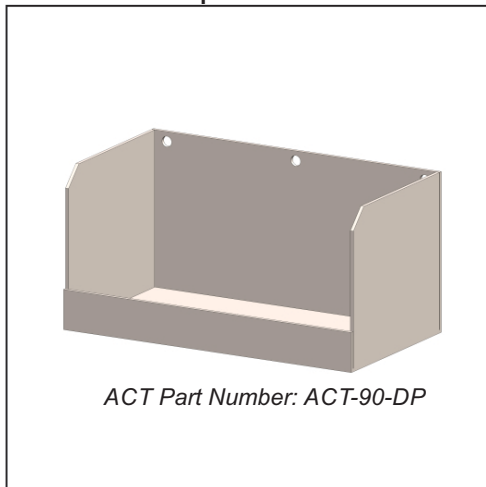
# INSTALLATION PROCEDURE



**Step 8:** Provide electrical power to the ACT-TEC-90 and verify that all fans are functioning properly. Double check that the fan air intake is clear and that no enclosure walls or hardware are within 6.0” of the intake or exhaust portion of the heat exchanger.

**Step 9. (Optional):** If a rain guard has been selected, it is recommended that the rain guard be installed prior to mounting the ACT-TEC to the enclosure wall. The rain guard comes with four (4) self tapping screws. Simply place the rain guard over the fan opening as shown in below, mark each of the hole locations, temporarily remove the rain guard and drill a pilot hole (0.136” diameter) at each mark. Finally, place the rain guard in the original location and fasten it to the cover using the four self tapping screws.

ACT-TEC Optional Drain Pan



## CAUTION

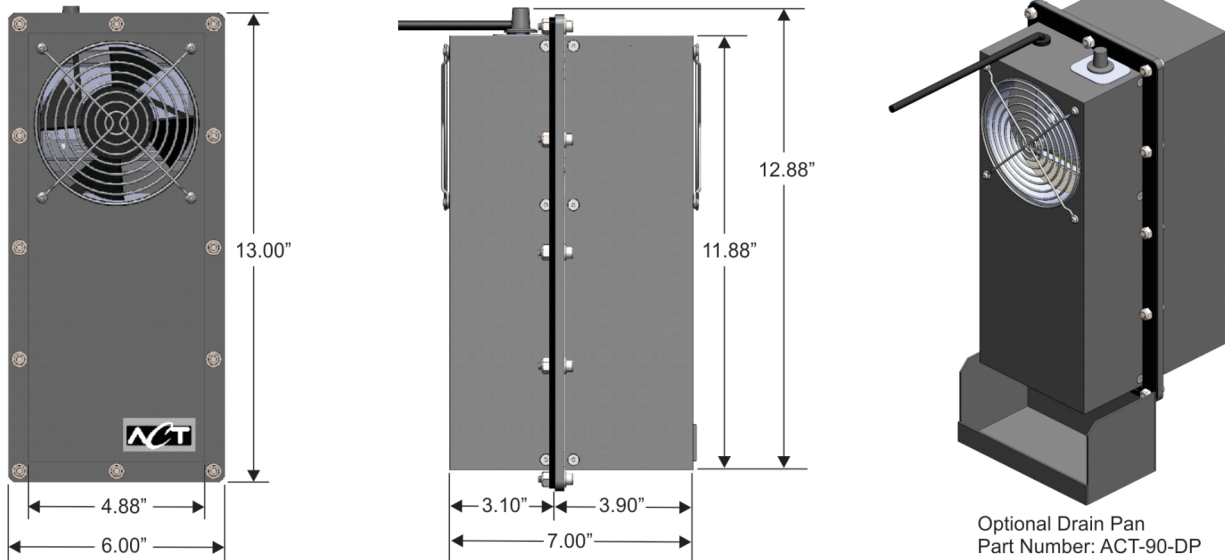
ACT-TEC units are available in a wide range of operating voltages. Make sure the supply voltage matches the stated voltage on the ACT factory label. An improper input voltage connection will void the product’s warranty.

Do not operate the ACT-TEC units without the fan guard properly in place.

For proper operation make sure that the fan air intake is clear and that no enclosure walls or hardware are within 6.0” of the intake or exhaust portion of the ACT-TEC heat exchanger.



## ACT-TEC 90 Dimensions



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