AIR TO AIR HEAT EXCHANGERS

HEAT PIPE TECHNOLOGY
CLOSED LOOP DESIGN
AVAILABLE IN 120VAC, 230VAC, 24VDC & 48VDC
NEMA TYPE 12, 4 AND 4X
UL LISTED FOR STANDARD AND HAZARDOUS LOCATIONS

MADE IN THE USA

WARRANTY

5-YEAR

Get the Edge... Get Thermal Edge
TEMPERATURE CONTROL SOLUTIONS FOR ELECTRICAL ENCLOSURES

(972) 580-0200 • www.thermal-edge.com • thermalinfo@thermal-edge.com

MADE IN THE USA
The Thermal Edge Air to Air Heat Exchanger is a closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside. Where ambient temperatures are suitable for heat pipes, they are the most efficient method of cooling as the waste heat is the engine which drives the system. The only power requirement is to operate two circulating fans or blowers.

Heat pipes have a liquid refrigerant under a partial vacuum inside sealed tubes. They operate with a phase change process which is much like that of mechanical air conditioning, but without the compressor. The heat pipes are assembled with finned evaporator and condenser sections which are separated by a sealed baffle so as to provide a closed loop.

The lower section of the heat pipe assembly is in contact with heated air from the electrical enclosure. The heat causes the refrigerant to change phase (vaporize). The vapor flashes (at the speed of sound) to the top of the pipe which is in contact with the outside (ambient) air. When the outside air temperature is lower than the enclosure temperature, the refrigerant vapor gives up heat to the outside air and returns to the liquid phase. The liquid falls to the bottom and repeats the cycle endlessly, so long as there is a negative temperature differential between the outside air and the enclosure. Heat pipes will not operate in reverse cycle so heat cannot be transferred from the ambient to the interior of the enclosure.

The Thermal Edge design has a top-to-bottom enclosure air flow pattern with maximum separation of the inlet and outlet. This design pulls the hottest air from the top of the enclosure and returns the cooled air from the bottom of the heat pipe to the enclosure. The air flow on the ambient side is bottom in, top out, so that the hotter discharge air moves up and away rather than being recirculated.

As with all of our coil systems, we use aluminum end plates and baffles which improve conduction and reduce corrosion for longer life. The center aluminum baffle, which is swedged into the heat pipe coil, provides an air tight seal between the two air systems.
ADVANTAGES

- Industry leading 5-Year Workmanship Warranty
- High efficiency heat pipe design
- Standard units include on/off switch
- NEMA Type 12, 4 & 4X
- Coated coils standard on all units
- 115VAC, 230VAC, 24VDC & 48VDC
- Needs no filter
- UL Listed for standard & hazardous location
- Customer Service Reps answering your calls
- A website that is easy to navigate AND solutions that are easy to find
- Equipment tested to perform and built to last
- Units designed with our customers’ applications and environments in mind
- UL File # 33288 Under
  UL standard 1995

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**A2A Series Air to Air Heat Exchangers**

<table>
<thead>
<tr>
<th>Model</th>
<th>Body Style</th>
<th>Watts/°C</th>
<th>Watts/°F</th>
<th>Voltage/Hz.</th>
<th>Running Amps</th>
<th>Maximum Ambient</th>
<th>H x W x D (Mounting Dimensions)</th>
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<td>22</td>
<td>12</td>
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**Options:**
Hazardous Location Class 1, Div 2, Groups A,B,C,D (XJX)
Components are Failing inside electrical enclosures when using Filtered Fan Packages

**FACT:** FILTERED FANS INTRODUCE DIRT AND CONTAMINATION INTO EVERY ELECTRICAL ENCLOSURE USING THEM
**FACT:** DRIVES AND PLCs DO NOT LIKE DIRT, DUST AND CONTAMINATION
**FACT:** FILTERED FANS CAN NEVER PRODUCE A TRUE CLOSED LOOP COOLING SOLUTION
**FACT:** NO MATTER HOW EFFECTIVE YOUR FILTER IS, DIRT AND PARTICULATES WILL ENTER YOUR ENCLOSURE

**CONSIDER A BETTER SOLUTION - AN AIR TO AIR HEAT EXCHANGER:**
- ALWAYS CLOSED LOOP
- LOW COST AND MAINTENANCE FREE
- EASIER TO MOUNT ON ONLY ONE SIDE OF YOUR ENCLOSURE
- ENERGY EFFICIENT, USING NO MORE POWER THAN A FILTERED FAN SYSTEM
- FILTER FREE, SO NO DIMINISHED COOLING CAPACITY.
- AIR TO AIR HEAT EXCHANGERS ARE AVAILABLE IN NEMA TYPES 12, 4 AND 4X

In this image, a standard installation demonstrates the **closed loop** condition maintained by the Air to Air Heat Exchanger. Cool air inlet and outlet vents are completely covered by the heat exchanger. This provides NEMA Type 12, 4 or 4X.

In this image, a standard installation shows where the dirt and particulate will enter the enclosure and be pulled in by the fans on your drives and devices. Filters or not, contamination is invited in by this **open loop** approach.

**CONTACT US TODAY FOR TEMPERATURE CONTROL SOLUTIONS FOR YOUR ELECTRICAL ENCLOSURES**
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EMAIL: THERMALINFO@THERMAL-EDGE.COM

All information subject to change without notice.

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