



# Thermal Edge Inc.

## AIR TO AIR HEAT EXCHANGERS

HEAT PIPE TECHNOLOGY

CLOSED LOOP DESIGN

AVAILABLE IN 120, 230, 24VDC & 48VDC

NEMA TYPE 12, 4 AND 4X

UL LISTED FOR STANDARD AND HAZARDOUS LOCATIONS



**Get the Edge... Get Thermal Edge**

*Temperature Control Solutions For Electrical Enclosures*

**A2A SERIES  
 AIR TO AIR HEAT EXCHANGERS**

**THERMAL EDGE AIR TO AIR HEAT EXCHANGER**

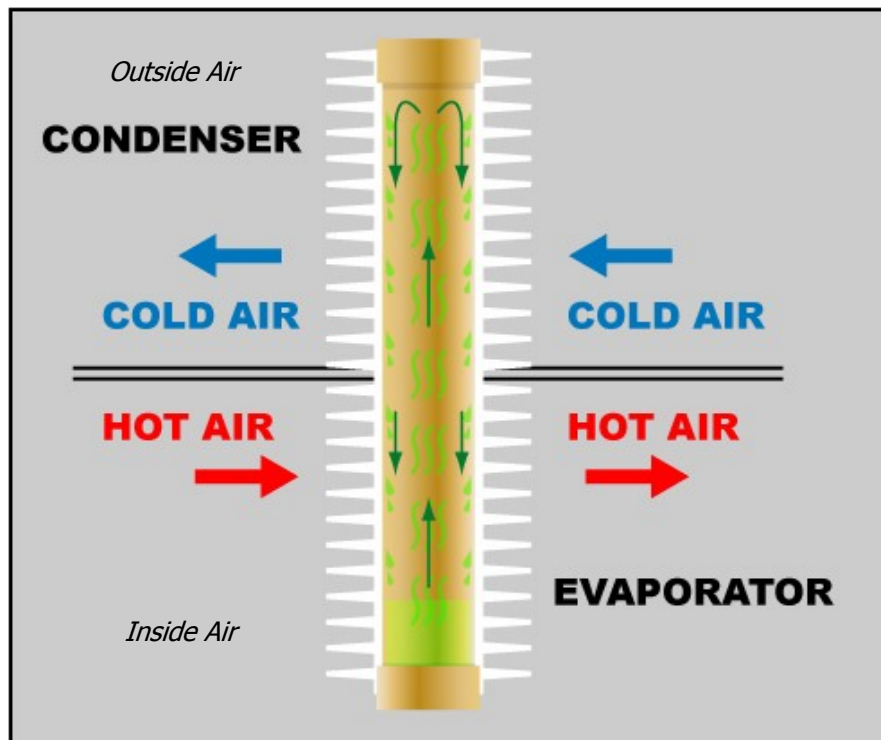
The Thermal Edge Air to Air Heat Exchanger is a closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside. Where ambient temperatures are suitable for heat pipes, they are the most efficient method of cooling as the waste heat is the 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.



## A2A SERIES- AIR TO AIR HEAT EXCHANGERS

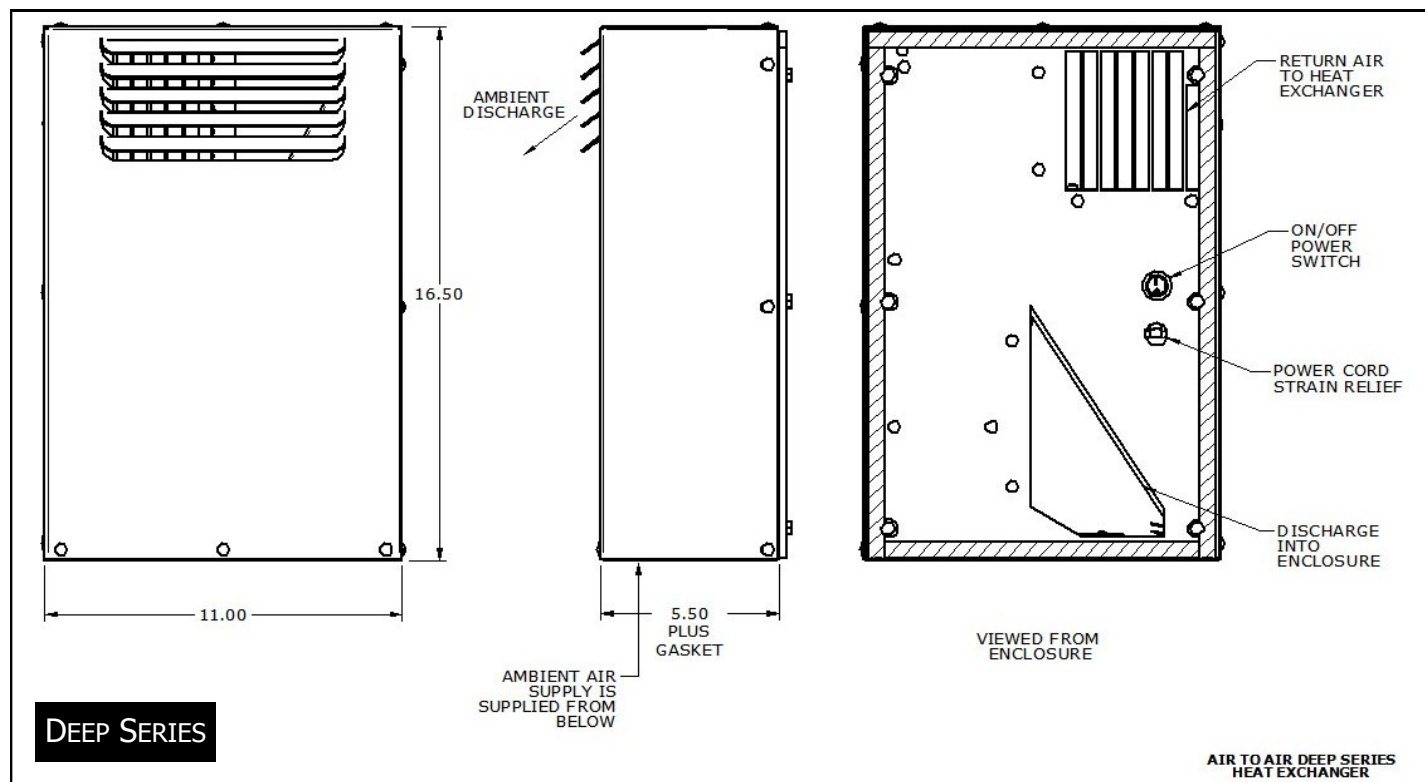
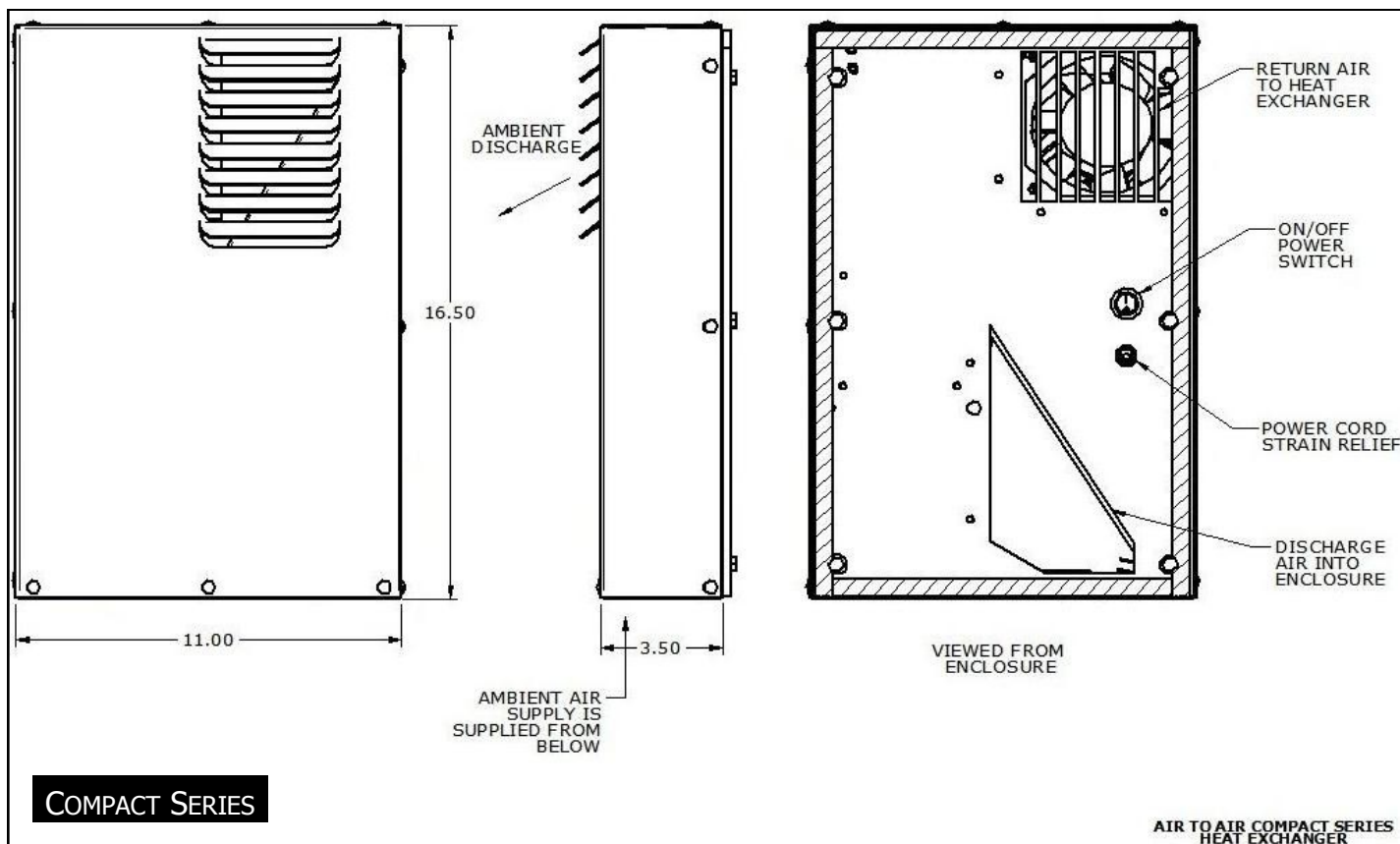
- All units are available in NEMA Type 12, 4 and 4X
- Motors have a sealed overload protector so can be used in Hazardous Location

Model	Body Style	BTU/Hour @20°C	Watts/°C	Voltage/ Hz.	Running Amps	Maximum Ambient	H x W x D (Mounting Dimensions)
A2AC040120	Compact	723	11	120 50/60	.37	160°F	16.5" x 11" x 3.5"
A2AC040230	Compact	723	11	230 50/60	.18	160°F	16.5" x 11" x 3.5"
A2AC040D24	Compact	723	11	24VDC	.80	160°F	16.5" x 11" x 3.5"
A2AC040D48	Compact	723	11	48VDC	.40	160°F	16.5" x 11" x 3.5"
A2AS040120	Slim	723	11	120 50/60	.37	160°F	21.00" X 5.6" X 11"
A2AS040230	Slim	723	11	230 50/60	.18	160°F	21.00" X 5.6" X 11"
A2AS040D24	Slim	723	11	24VDC	.80	160°F	21.00" X 5.6" X 11"
A2AS040D48	Slim	723	11	48VDC	.40	160°F	21.00" X 5.6" X 11"
A2AC080120	Compact	1446	22	120 50/60	.37	160°F	16.5" x 11" x 3.5"
A2AC080230	Compact	1446	22	230 50/60	.18	160°F	16.5" x 11" x 3.5"
A2AC080D24	Compact	1446	22	24VDC	.80	160°F	16.5" x 11" x 3.5"
A2AC080D48	Compact	1446	22	48VDC	.40	160°F	16.5" x 11" x 3.5"
A2AS080120	Slim	1446	22	120 50/60	.37	160°F	21.00" X 5.6" X 11"
A2AS080230	Slim	1446	22	230 50/60	.18	160°F	21.00" X 5.6" X 11"
A2AS080D24	Slim	1446	22	24VDC	.80	160°F	21.00" X 5.6" X 11"
A2AS080D48	Slim	1446	22	48VDC	.40	160°F	21.00" X 5.6" X 11"
A2AD120120	Deep	2171	33	120 50/60	.37	160°F	16.5" x 11" x 5.5"
A2AD120230	Deep	2171	33	230 50/60	.18	160°F	16.5" x 11" x 5.5"
A2AD120D24	Deep	2171	33	24VDC	.80	160°F	16.5" x 11" x 5.5"
A2AD120D48	Deep	2171	33	48VDC	.40	160°F	16.5" x 11" x 5.5"
A2AS120120	Slim	2171	33	120 50/60	.37	160°F	21.00" X 5.6" X 11"
A2AS120230	Slim	2171	33	230 50/60	.18	160°F	21.00" X 5.6" X 11"
A2AS120D24	Slim	2171	33	24VDC	.80	160°F	21.00" X 5.6" X 11"
A2AS120D48	Slim	2171	33	48VDC	.40	160°F	21.00" X 5.6" X 11"
A2AD160120	Deep	2894	44	120 50/60	.37	160°F	16.5" x 11" x 5.5"
A2AD160230	Deep	2894	44	230 50/60	.18	160°F	16.5" x 11" x 5.5"
A2AD160D24	Deep	2894	44	24VDC	.80	160°F	16.5" x 11" x 5.5"
A2AD160D48	Deep	2894	44	48VDC	.40	160°F	16.5" x 11" x 5.5"
A2AS160120	Slim	2894	44	120 50/60	.37	160°F	21.00" X 5.6" X 11"
A2AS160230	Slim	2894	44	230 50/60	.18	160°F	21.00" X 5.6" X 11"
A2AS160D24	Slim	2894	44	24VDC	.80	160°F	21.00" X 5.6" X 11"
A2AS160D48	Slim	2894	44	48VDC	.40	160°F	21.00" X 5.6" X 11"
A2AT200120	Tall	3666	55	120 50/60	.47	160°F	29" x 13.88 x 5.5"
A2AT200230	Tall	3666	55	230 50/60	.243	160°F	29" x 13.88 x 5.5"
A2AT200D24	Tall	3666	55	24VDC	1.94	160°F	29" x 13.88 x 5.5"
A2AT200D48	Tall	3666	55	48VDC	.928	160°F	29" x 13.88 x 5.5"
A2AT260120	Tall	4887	71.6	120 50/60	.47	160°F	29" x 13.88 x 5.5"
A2AT260230	Tall	4887	71.6	230 50/60	.243	160°F	29" x 13.88 x 5.5"
A2AT260D24	Tall	4887	71.6	24VDC	1.94	160°F	29" x 13.88 x 5.5"
A2AT260D48	Tall	4887	71.6	48VDC	.928	160°F	29" x 13.88 x 5.5"



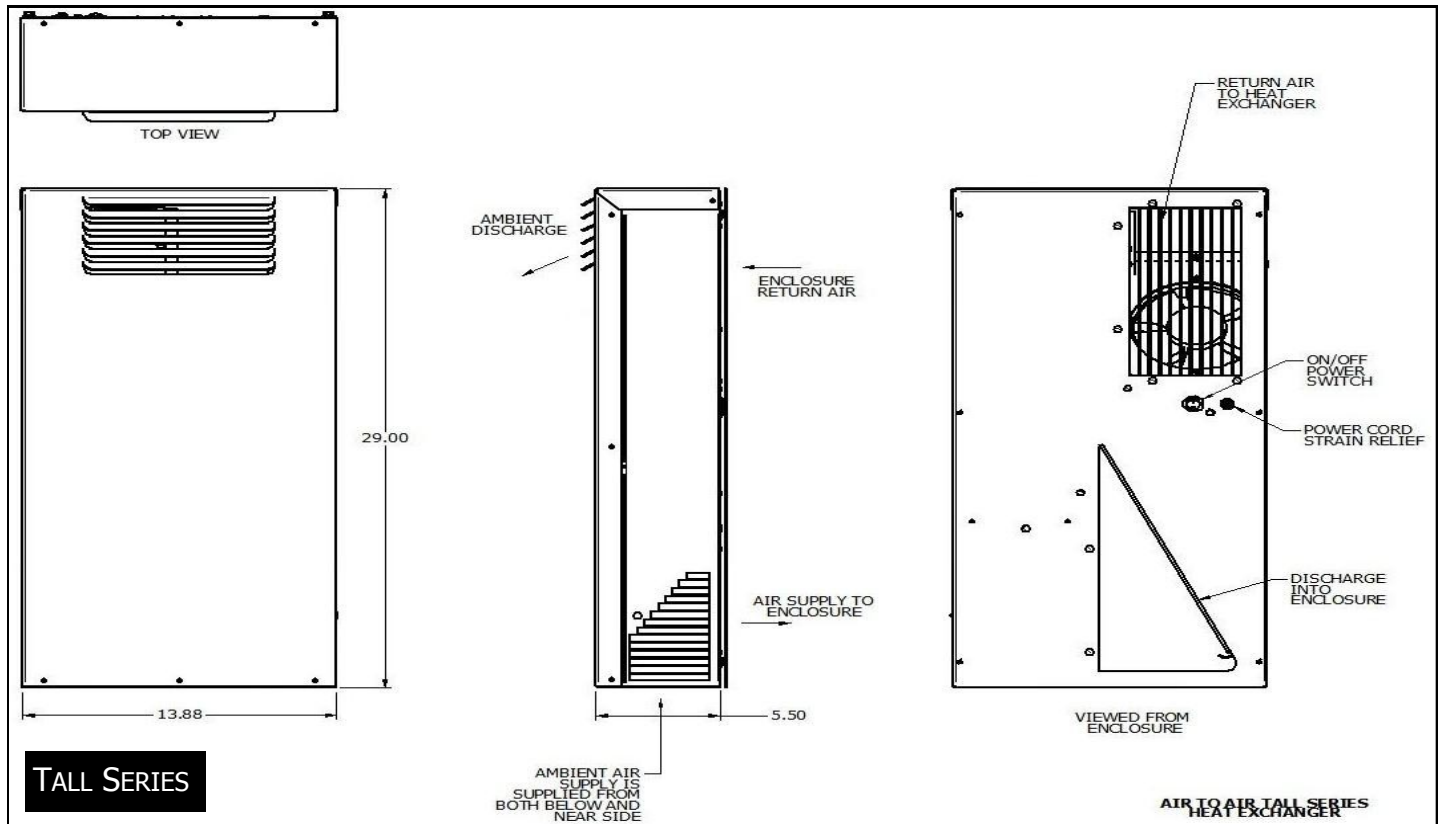
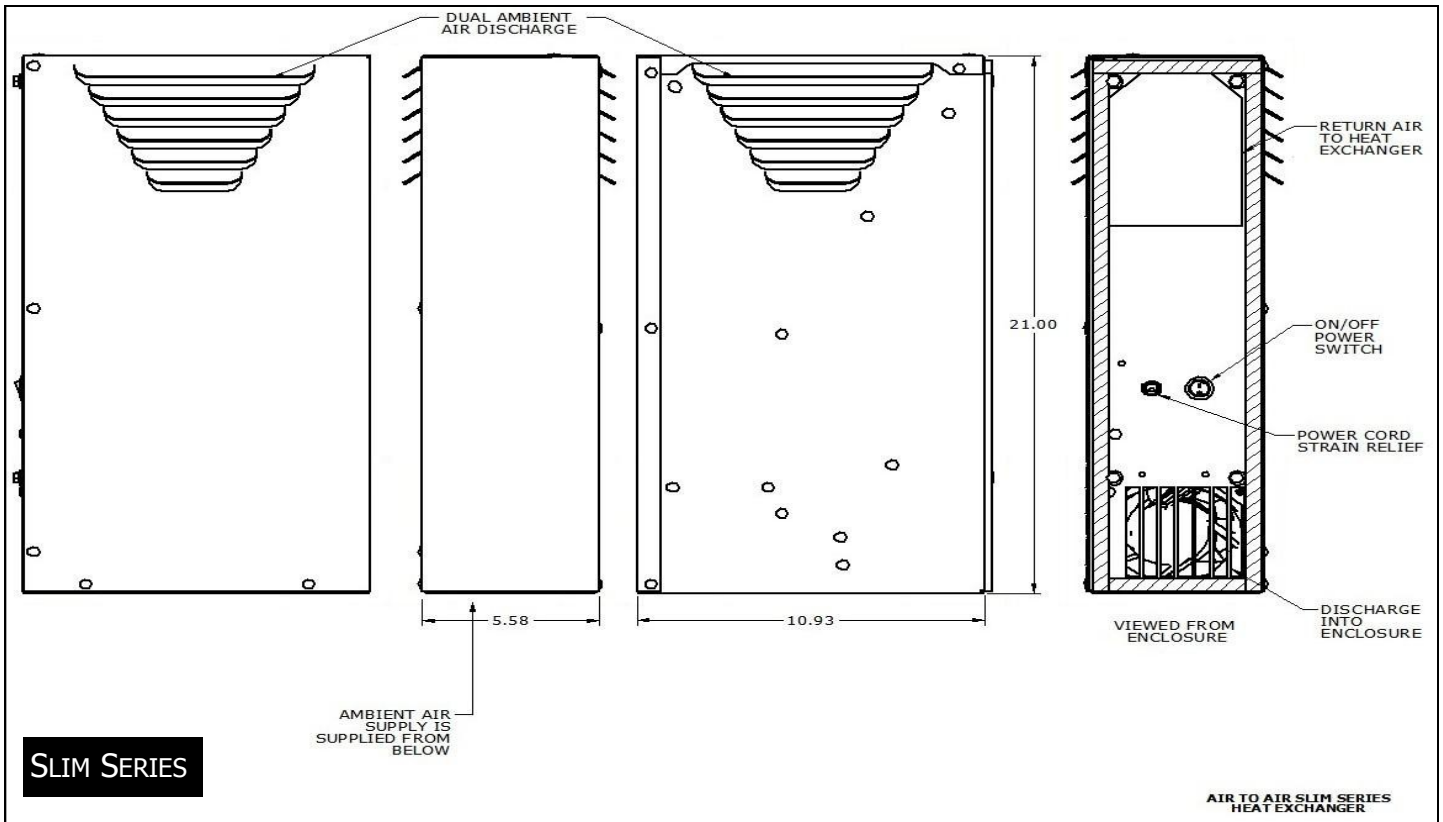
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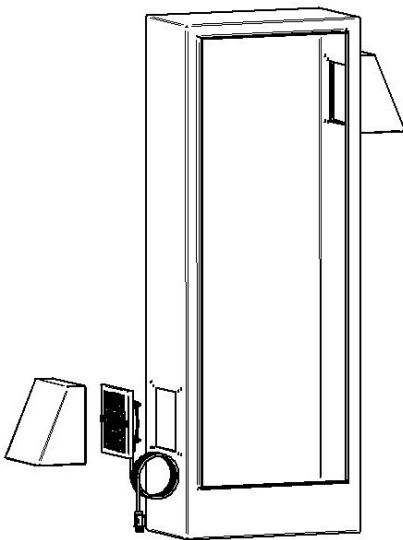


## Components are Failing inside electrical enclosures when using Filtered Fan Packages

- 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 - **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 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.



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.

**Contact Us Today to Remove Heat Issues in your Electrical Enclosures!!**

Phone: 1-925-706-7433

E-mail: [sales@iprocessmart.com](mailto:sales@iprocessmart.com)



UL File # 33288 Under  
UL standard 1995

All information subject to change without notice

**A2A Product  
Sheet**

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