

Pfannenberg PKS Saves Customer Approx. \$18,868 in Energy Cost

Industry: Automotive

Application: Electrical Enclosure Cooling



ISSUE

Climate controlled automotive plants maintain an ambient temperature of around 75-80°F. While the air may be cool enough for a Filterfan™, the air typically contains metal/dust/chemicals/oils that you would want to keep away from your enclosure electronics. To maintain a 95°F internal enclosure temperature in a contaminated environment and protect the enclosure electronics, a closed loop system would be necessary. This was traditionally accomplished with a compressor based active cooling unit, but the heat removed from the enclosure as well as the extra heat generated by the compressor are released into the climate controlled environment. This leads to higher energy costs and an increase in maintenance cost from more moving parts.

SOLUTION

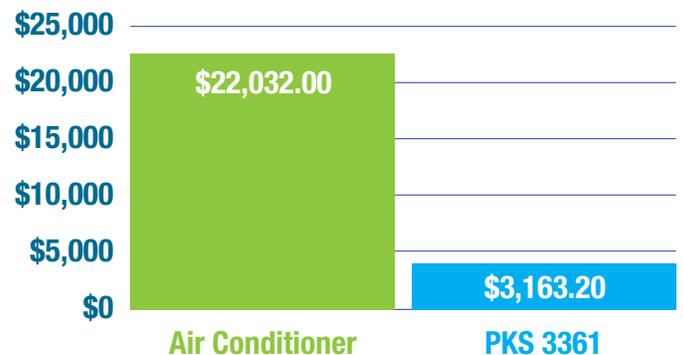
A Pfannenberg PKS Air/Air Heat Exchanger uses a single cutout size and is available in 4 different capacities. Unlike an active cooling unit a PKS unit uses passive cooling from the cooler ambient air for heat transfer to maintain 95°F without having extra heat generation from a compressor. A PKS only has two moving parts (fans) so there is less of a chance for failure

BENEFITS OF A PKS

When comparing the energy needed from an active cooling system to a passive PKS unit to cool an enclosure to 95°F, generating 2,000 W of heat in an environment that is cooled to 75-80°F. An active unit needs to use around 1,400 W while the PKS unit uses 245 W. So, over the course of 1 year the units will be running for 4,320 hours. In summary an active unit uses 6,048 kW*hr while the PKS uses 1,054.4 kW*hr @ \$0.12/kW*hr an active unit costs \$725.76 and a PKS costs \$126.53. On top of this the air conditioner for the plant has to remove an extra 700 w of heat that is generated by the active cooling unit's compressor, assumed to be about 300 W of energy from the plant air conditioner so an extra 1,296 kW*hr or \$155.52 a year. So for every active unit that is replaced by a PKS 3361 the plant will save \$754.75 in just energy consumption.

Single Unit Replacement	Air Conditioner	PKS 3361
Enclosure Heat Load (W)	2000	
Cost of Utilities (kW x hr)	\$0.12	
Power Consumption Rate (W)	1400	240
Annual Power Consumption (kW x hr)	6048	1054.4
Estimated Heat Removal (W) (HVAC System)	300	0
Estimated Heat Removal (\$) (HVAC System)	\$155.52	\$0.00
Quantity (# of Units)	25	
Total	\$22,032.00	\$3,163.20
Annual Savings (AC vs Air/Air Cooling Technology)	\$18,868.80	

25 UNITS ANNUAL COST OF OPERATION



REV 1.1

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