

PKS AIR/AIR HEAT EXCHANGER TECHNOLOGY OVERVIEW



PKS 3000 SERIES | AIR/AIR HEAT EXCHANGERS

22-180 W/°C

The PKS 3000 Series Air/Air Heat Exchangers use **Pfannenberg's Kinetic System™** next generation cooling to remove heat from an electrical enclosure. This is a perfect solution when concerned with open loop designs that don't prevent corrosive gas, humidity and dust from entering the enclosure. Designed for cooling indoor, outdoor or remote cooling applications that require a closed loop system to protect electronics. Available in 4 models; **PKS 313X, PKS 320X, PKS 330X, PKS 336X.**

Best CCPD™

Produces superior Cooling Capacity Per Density vs. conventional heat exchanger and/or heat pipe solutions. One of the most compact units for the available cooling capacity.

Energy Efficient

Utilizes lower temperature ambient air to cool warmer internal air without an active component such as a compressor which consumes high amounts of energy.

Narrow Width

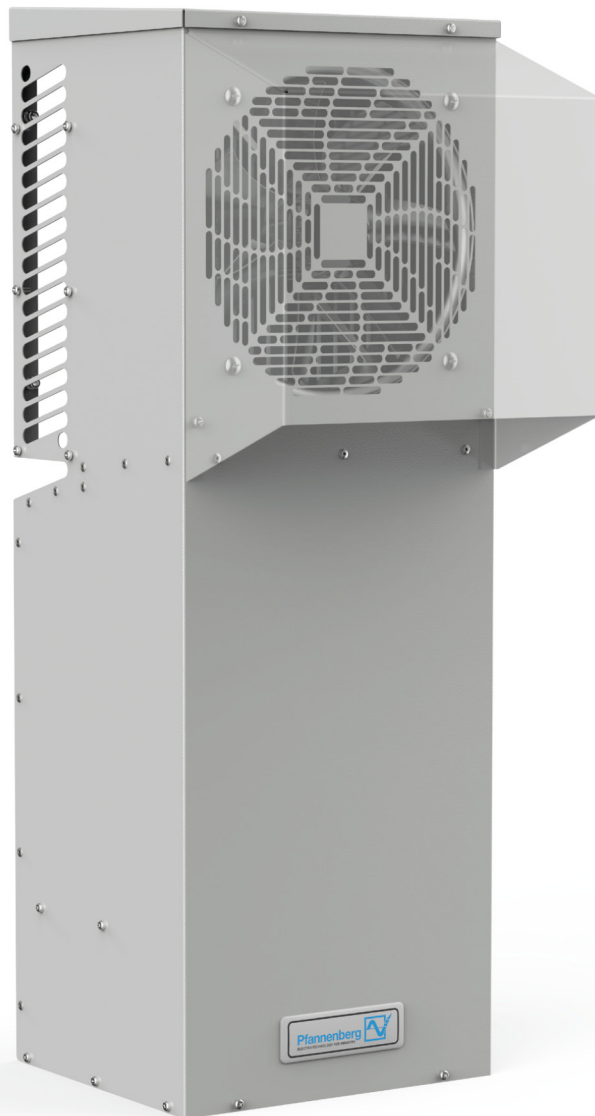
Width of the unit is maintained at 12 inches to fit onto the side of a smaller NEMA enclosure.

Reduced Maintenance

With only two mechanical components (fans), potential failure point are reduced to ensure continuous uptime of your processes.

Flexible Mounting Options

Unit can be installed vertically or horizontally, allowing the cool air to be focused where it is needed most.



Closed Loop Design

Designed to isolate external ambient air from internal air eliminating the risk of contaminants entering the cabinet. Compared to Filterfans® with rainhoods; the PKS seals against gaseous substances, humidity and airborne particulates such as dust, keeping it away from sensitive components within the electrical enclosure.

Easy Installation

Compact lightweight design means that the unit can be installed by just one person.

Self Protected from Harsh Environments

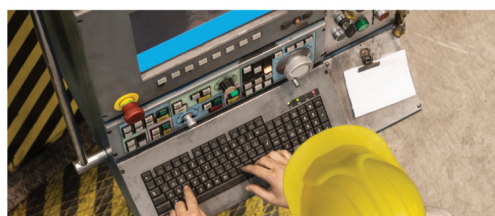
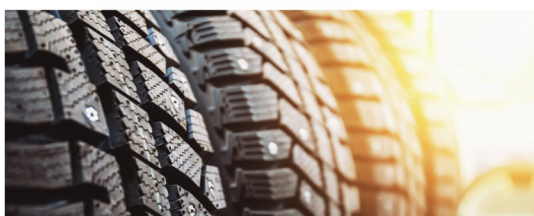
Uniquely designed to operate in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Eliminates Hotspots

High CFM fans with superior air flow, ideal for eliminating hot spots.



PATENT
PENDING



Contact Hammond Manufacturing for
all your enclosure cooling needs.

hammondmfg.com



PKS Air/Air Heat Exchangers

Traditionally if the ambient air was cool enough but too contaminated to use for Filterfan® cooling the next option selected was an industrial air conditioner. This solution led to oversizing and energy inefficiency. Pfannenberg introduces a revolutionary new technology that fills the gap between Filterfans® and enclosure cooling units, using the cooler ambient air that is already available.

- Reduce monthly operating expenses
- Reduce maintenance costs
- Reduce energy costs
- Reduce heat released to the surrounding area



PKS Air/Air Heat Exchangers

When Should You Use a PKS Air to Air Heat Exchanger?

- » If the ambient temperature is lower than the temperature required in the electrical enclosure.
- » If a separate closed loop internal and external air circulation system must be created for cooling due to the ambient air being too dirty to be brought into the cabinet for cooling.

Understanding Other Types of Cooling

When Should You Use a DTS Cooling Unit (A/C)?

- » If the ambient temperature is equal to or higher than the temperature required in the electrical enclosure.
- » If a separate closed loop internal and external air circulation system must be created for cooling due to the ambient air being too hot or dirty to be brought into the cabinet for cooling.

DTS Series
Enclosure
Cooling Units



When Should You Use a Filterfan®?

- » If the ambient temperature is lower than the temperature required in the electrical enclosure.
- » If open loop cooling is acceptable because the external air is clean enough to be filtered into the cabinet air for cooling.

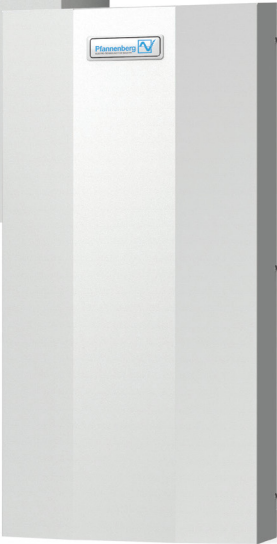


Filterfan 4.0™

When Should You Use an PWS Air to Water Heat Exchanger?

- » If the ambient temperature is equal to or higher than the temperature required in the electrical enclosure.
- » If the external ambient air is too contaminated to be used as a separate external circulation system to discharge the heat. Water from a chiller or other chilled liquid source is used in place of the external air for the secondary circulation system.

PWS Air/Water
Heat Exchanger



Thermal Management Recommendations Based on Application Requirements.

PRODUCTS	AMBIENT TEMPERATURE				INGRESS PROTECTION			ENERGY EFFICIENCY
	Low <40 °F	Climate Controlled 65-85 °F	Medium 86-100 °F	High 100 + °F	Low Contaminant	Med Contaminant	High Contaminant	Operating Cost
Filterfans® PF	☺	☺	☹	☹	☺	☹	☹	\$
Air/Air Heat Exchangers PKS	☺	☺	☺	☹	☺	☺	☹	\$ \$
Cooling Units DTS	☺	☺	☺	☺	☺	☺	☹	\$ \$ \$ \$ \$
Air/Water Heat Exchangers PWS	☹	☺	☺	☺	☺	☺	☺	\$ \$ \$ (requires piping)