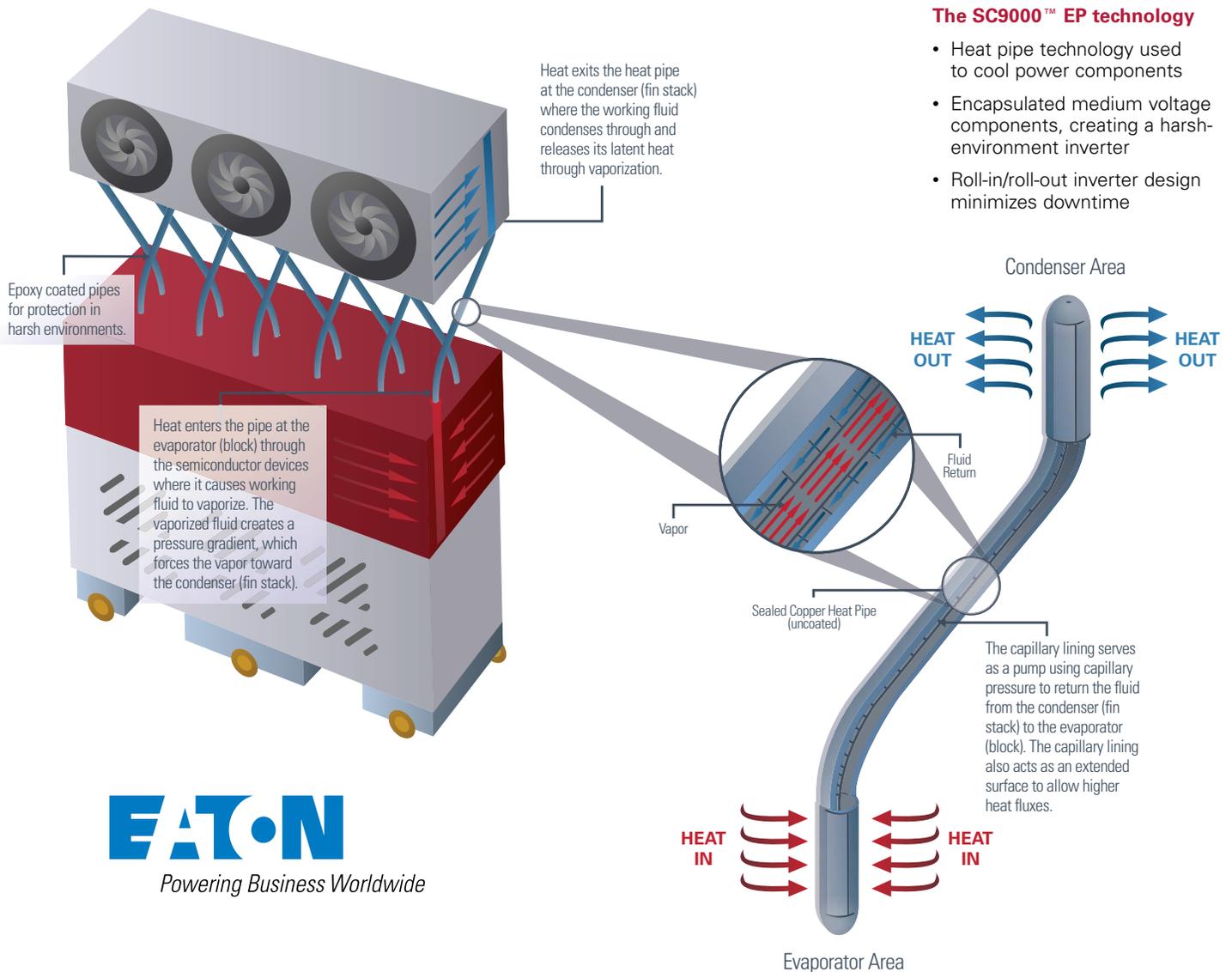


Heat pipe technology

The SC9000™ EP technology

- Heat pipe technology used to cool power components
- Encapsulated medium voltage components, creating a harsh-environment inverter
- Roll-in/roll-out inverter design minimizes downtime



About heat pipe technology

Q: What is heat pipe technology and how does it work?

A: Heat pipe technology allows for efficient and fast transfer of heat from active heat-generating elements to condenser elements in an electrical system. The heat pipe uses a self-contained, constant flow of fluid from the heat-generating elements to the condenser elements. Fluid in the heat pipe vaporizes due to the heat in the active elements, and capillary pressure returns the cooled fluid toward the part of the heat pipe that contains the active element.

Q: Why would I need this technology?

A: The heat pipe cooling method is the most efficient air-cooled thermal management system available today. It is up to 10 times more efficient than conventional air-cooled methods. Consequently, less airflow is necessary, reducing audible noise and levels of contaminants pulled into electrical cabinets.

Q: How does heat pipe technology integrate into products?

A: The heat pipe connects the active elements of a system to the condenser elements. Heat enters pipes at the evaporator block (through semiconductor devices), where it causes working fluid to vaporize. The vaporized fluid creates a pressure gradient and forces the vapor toward the condenser (fin stack). Heat exits the heat pipe at the condenser (fin stack) where the working fluid condenses and releases its latent heat of vaporization. The condensed working fluid is drawn down into the pores of the capillary lining and returns to the evaporator.

Q: Is heat pipe technology safe in cold climates?

A: Yes. A third-party testing lab performed temperature testing on the heat pipe exchangers at -50°C for 24 hours, in order to simulate harsh transportation temperatures. The lab reports that: "Cold storage at -50°C has no influence on the structure of the [heat pipe] unit. No defects were found."

Q: If a heat pipe gets damaged, will performance be affected?

A: It is nearly impossible to damage a heat pipe during normal handling and operation. If one does leak, performance will not be affected in most cases. However, contact your Eaton service center if a leak is noticed.



For more information on Eaton medium voltage adjustable frequency drives, visit Eaton.com/SC9000 or call **1-877-ETN-CARE**, option 2, then option 7

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