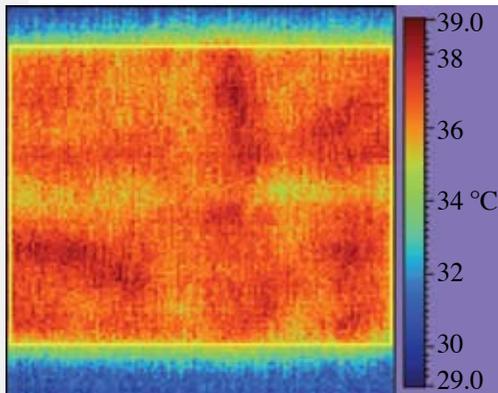


## Radiant and Conductive Heating

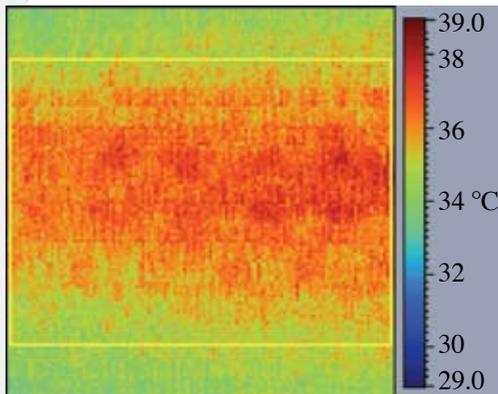
Hot Dog® blankets use a combination of radiant and conductive heating. The semi-conductive polymeric heater delivers heat energy very evenly. Some surface temperature variations, however, are intentional-- designed to enhance the blankets' safety and effectiveness. The temperature of areas not in contact with the patient rise slightly to provide better radiant heat transfer. If a patient contacts this area it cools instantly—because of the low watt density of the heater and low thermal mass of the blanket.

A simple analogy helps explain this--When food is baking in an oven at 175 °C, one may touch the aluminum foil covering the food without being burned. Although the aluminum foil is the same temperature as the oven, it has a low thermal mass and cannot easily store heat. Like warmed aluminum foil, the Hot Dog blanket cannot transmit energy to skin quickly enough to cause thermal injury. Instead, it immediately cools to the proper temperature for conductive warming. The small temperature variations in Hot Dog blankets ensure patients' normothermia...but pose no risk to safety.

## Hot Dog® vs. Hot Air Infrared Heat Distribution



▲ Hot Dog blankets provide even heat distribution  
▼ Hot Air blankets have less even heat distribution



## Standards

- IEC 60601-1 Class II Type BF
- IEC 60601-1-2 Emissions and Radiation
- IEC 60601-2-35 Medical Use Heating Pads
- CE Mark
- FDA 510K clearance
- ISO 13485 registered
- ETL listed (US & Canada)

Hot Dog USA, LLC  
7536 Washington Ave S.  
Eden Prairie, MN 55344  
TEL 888.HD-VARMS  
(888.439.2767)  
www.hotdog-usa.com



Hot Dog International, LLC  
6581 City West Parkway  
Eden Prairie, MN, USA 55344  
TEL 1.952.465.3500  
FAX 1.952.465.3501  
www.hotdogwarming.com

PN M103 Rev A

©2008. Hot Dog International, LLC. All Rights Reserved.



Patient Warming System



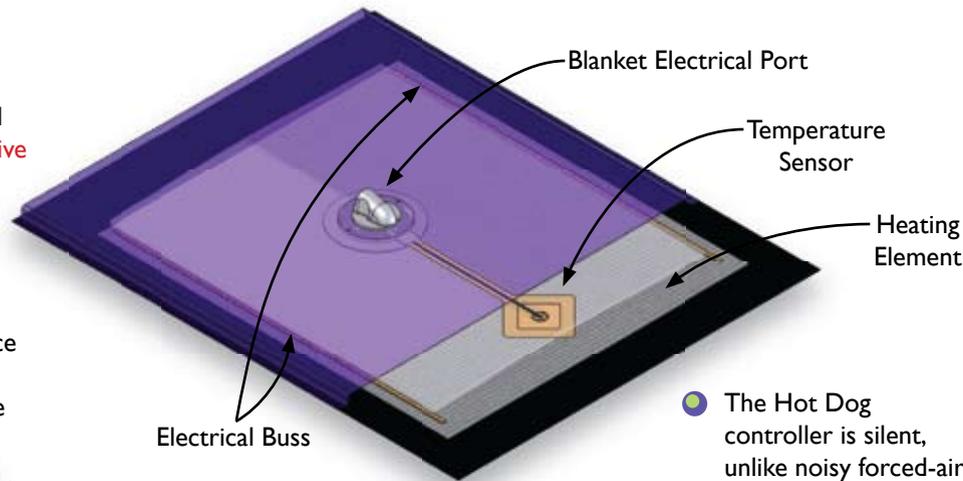
Technical  
Information

Hot Dog® patient warming is [air-free]. This state-of-the-art technology warms not by blowing air, but by using a semi-conductive polymeric fabric that delivers safe and effective heat to the patient. Here's how it works...



- The Hot Dog controller delivers low voltage (48VDC) to the blankets and monitors the blanket temperature with a single **thermistor-type temperature sensor**. A second “over-temperature” thermistor serves as the safety backup.
- A microprocessor ensures that the blanket is operating properly and will turn off the blanket in the event of an unsafe condition.
- The electrical current from the controller is transferred to the blanket via a cable and an electrical buss that runs the length of the blanket on each edge.

- The electrical buss transmits the electrical energy to the **conductive polymer-coated fabric**.
- The electrical resistance of the fabric causes it to heat evenly over the entire surface of the blanket.
- An **antimicrobial** shield is imbedded in the non-porous poly-vinyl material. The outer shell of the blankets is waterproof and has been heat-sealed to eliminate fluid ingress.



- The Hot Dog controller is silent, unlike noisy forced-air blowers
- The blankets reach desired operating temperature in approximately 3 minutes.
- The heating material in the blankets is radiolucent.
- Consumes a maximum of 280 watts compared with forced-air systems that can require 1800 watts.
- Thickness of the blanket is  $0.6 \pm 0.1$  cm. Heater material is as thick as a sheet of paper.
- The largest blanket's weight is equal to 3-4 cotton sheets.



### Safety

If a Hot Dog blanket is cut or punctured, absolutely nothing happens. There is no danger to the clinician or the patient, because the blanket is electrically isolated from the ground. There is no risk of shock or fire hazard. If a blanket is cut or punctured, it will continue to operate, but, of course, the blanket should be replaced after the case.

### 100% Cleanable

All operating room equipment must be cleanable. The Hot Dog system is 100% cleanable. The blankets, cords and controllers can be wiped down with the same cleaning products that are used to clean OR tables and other operating room equipment.



A thin barrier such as a bed sheet, gown, or Hot Dog disposable sheet is recommended between the patient and the Hot Dog blanket. The use of a barrier helps prevent sweating and possible skin irritation due to residual cleaning agents on the Hot Dog blankets.