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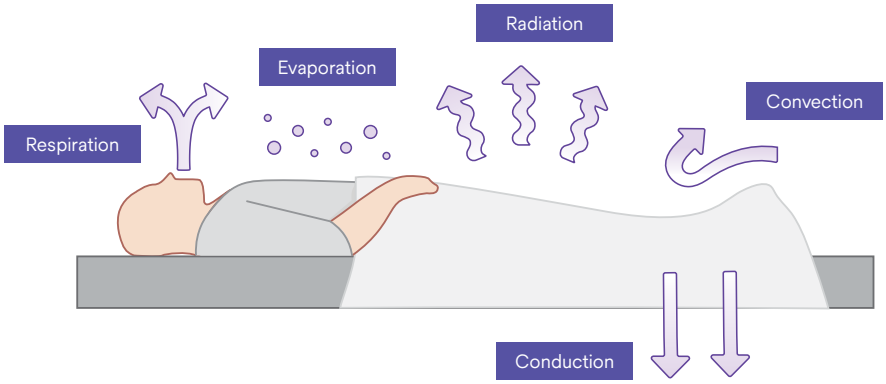
Bair Hugger™ Normothermia Solutions Heat Transfer Evaluations.

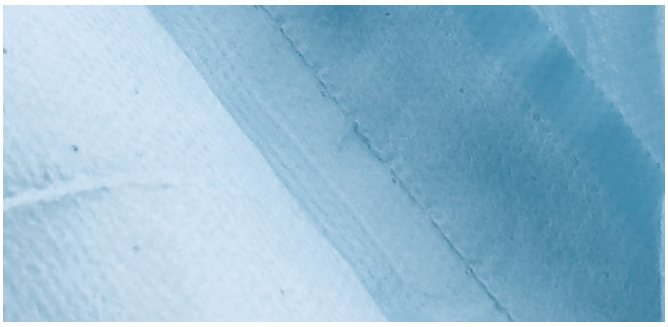
Unintended hypothermia can be prevented or minimised by transferring heat into the body before, during and after surgery. Guidelines support the use of a convective forced-air warming system as one of the most effective ways to transfer heat into the body.[1] Although there are several convective warming systems on the market, not all of them have equivalent performance or safety profiles.



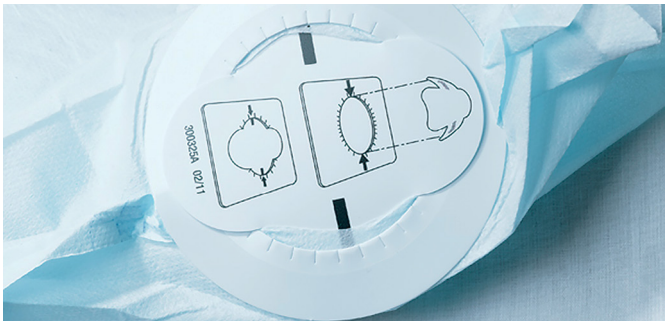
Designed to be different

Effectiveness of forced-air warming systems depends on blanket design, particularly the evenness of heat distribution across the blanket.[2,3] Moving air loses heat very quickly.[2,3] Therefore air should be channelled efficiently to all parts of a blanket to provide even heat distribution.

Interconnected Air Channel System
Interconnected air channels run the length of the blanket providing even distribution of warm air to the patient.



Air Hole Perforation
A symmetrical pattern of small holes extends across the entire surface of the blankets to maximise recruitment of skin surface area.



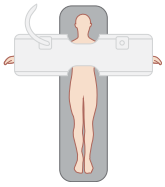
Pre-sealed hose port
In selected blankets, two re-sealable hose ports enable versatile and convenient positioning of the warming unit.

Fluid outlets
In selected blankets, fluid outlets minimise pooling of fluids on the surface of the blanket and cooling effect of excess fluids.

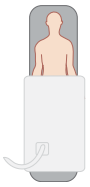
1. Ljungqvist O, Scott M, Fearon KC. Enhanced recovery after surgery: A review. JAMA Surgery. 2017;152(3):292-298.
2. Brauer, A., et al., What determines the efficacy of forced-air warming systems? A manikin evaluation with upper body blankets. Anesth Analg, 2009. 108(1): p. 192-8.
3. Brauer, A. and M. Quintel, Forced-air warming: technology, physical background and practical aspects. Curr Opin Anaesthesiol, 2009.

Bair Hugger™ Patient Warming Blanket Heat Distribution & Heat Transfer Rate[4]

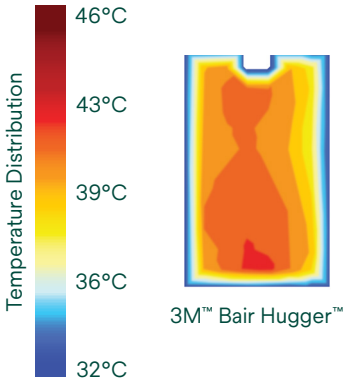
3M™ Bair Hugger™ warming unit Model 775 (120V/60hz) with Model 30000 full body warming blanket

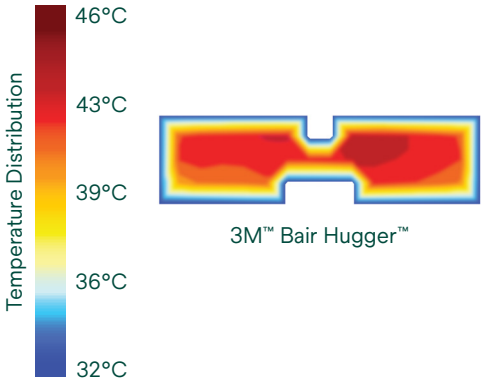


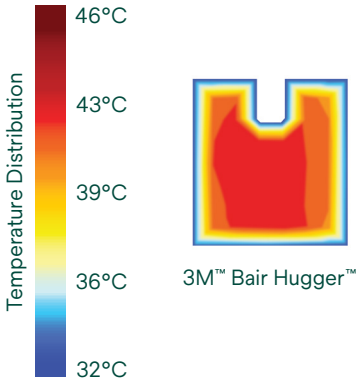
3M™ Bair Hugger™ warming unit Model 775 (120V/60hz) with Model 62200 multi-position upper body warming blanket

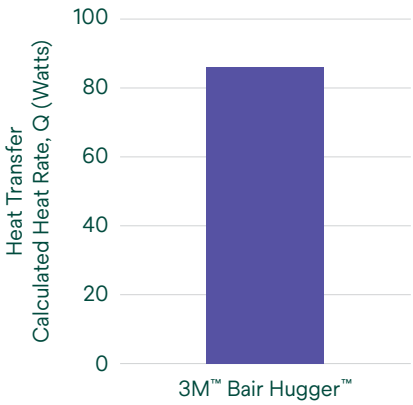


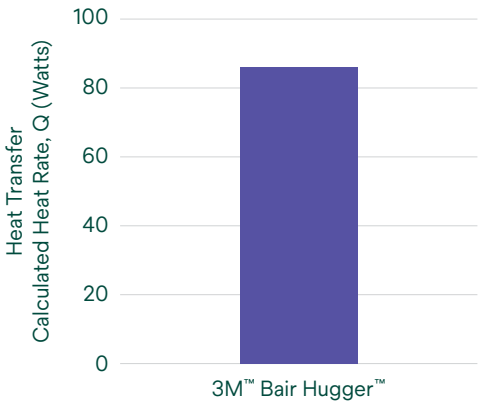
3M™ Bair Hugger™ warming unit Model 775 (120V/60hz) with Model 52500 lower body warming blanket

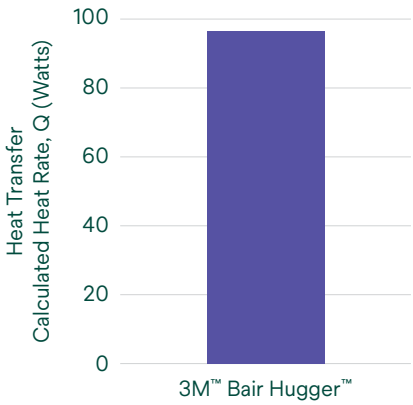












For more information about 3M™ Bair Hugger™ Temperature Management Solutions, please contact your local 3M sales representative.

Note: Specific indications, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. Rx only.

*Images reflect the temperature of the portion of the blanket that transfers heat when inflated (tested per IEC 60601-2-35:2020). Competitive (full/lower/upper) body blanket used in conjunction with a full sized blower (120V/60hz) on its highest temperature and fan speed settings.
**Temperature measurements were taken in accordance with IEC 60601-2-35:2020, heat transfer coefficients were measured using the method of Brauer et al.[5-7] and skin temperatures for the calculation of 'Q' were assumed to be 34°C.[8] Heat rates are estimates based upon a typical use case, actual heat rate may vary depending on the patient circumstances and clinical practice.

4. 3M Data on File.
5. Bräuer, A., English, M. J., Sander, H., Timmermann, A., Braun, U., & Weyland, W. (2002). Construction and evaluation of a manikin for perioperative heat exchange. Acta Anaesthesiologica Scandinavica,46, 43-50. doi:10.1034/j.1399-6576.2002.460108.
6. Bräuer, A., English, M. J., Steinmetz, N., Lorenz, N., Perl, T., Braun, U.,& Weyland, W. (2002). Comparison of forced-air warming systems with upper body blankets using a copper manikin of the human body. Acta Anaesthesiologica Scandinavica, 46, 965-972. doi:10.1034/j.1399-6576.2002.460807.
7. Bräuer, A., English, M. J., Lorenz, N., Steinmetz, N., Perl, T., Braun, U.,& Weyland, W. (2003). Comparison of forced-air warming systems with lower body blankets using a copper manikin of the human body. Acta Anaesthesiologica Scandinavica, 2003, 58-64. doi:10.1034/j.1399 6576.2003.470110.
8. Sessler, D. I. (1997b). Perioperative thermoregulation and heat balance. Ann N Y Acad Sci, 813, 757-777.

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