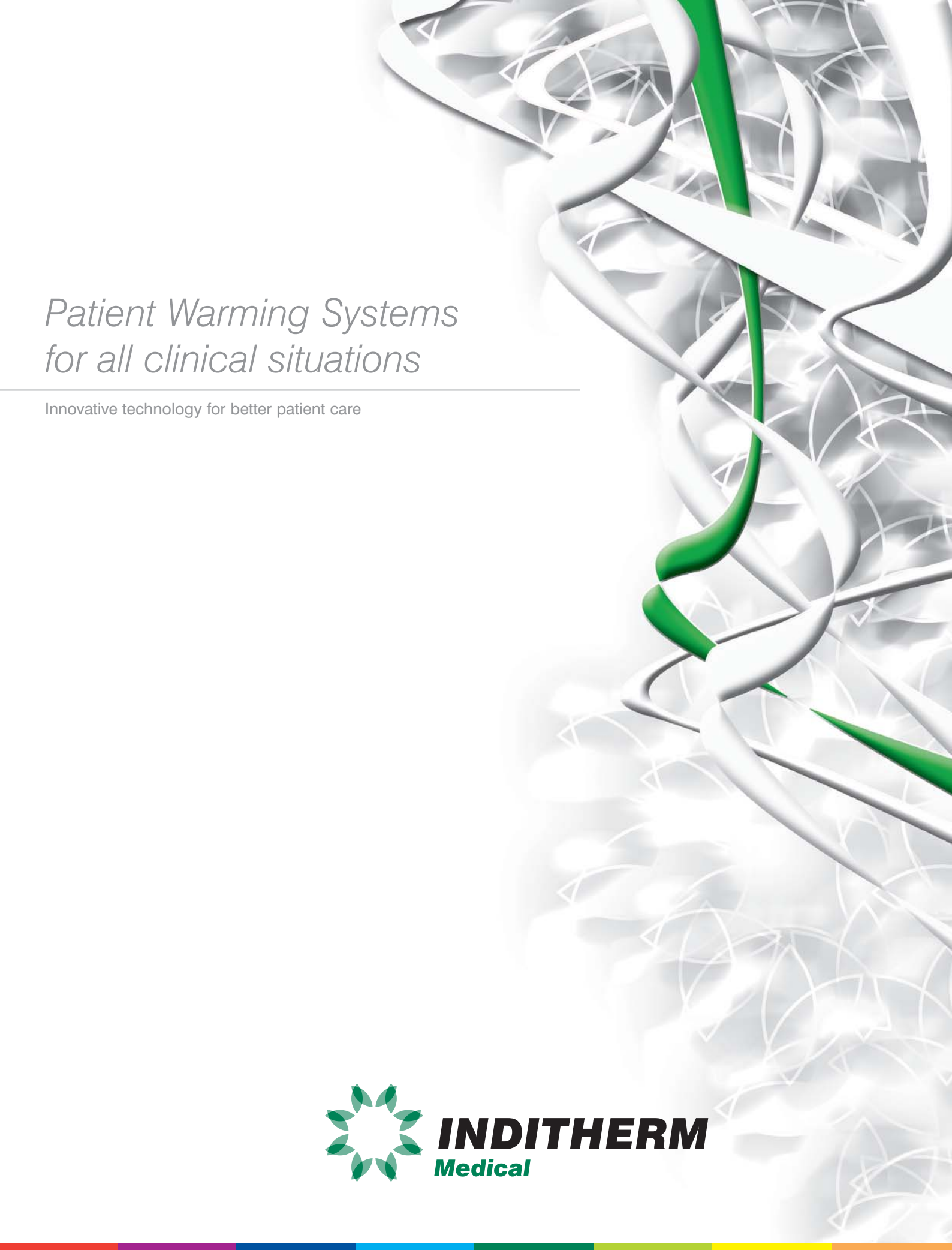


Patient Warming Systems for all clinical situations

Innovative technology for better patient care

INDITHERM Medical

Improved patient warming for better clinical outcomes

Inditherm have established themselves as experts in heating and warming solutions for a wide range of industries and applications. Their innovative, world-leading technology now leads warming practice for patient care in surgery and other critical care situations.

There is widespread clinical evidence of the benefits of patient warming for the prevention of hypothermia. These studies are wide-ranging, covering surgery, anaesthesia, recovery room, the pre-operative period, emergency department, patient transport, and more.[1, 2, 3, 4]

The clinical benefits are clearly demonstrable, such as improved morbidity and mortality, lower infection rates, less time in recovery, reduced incidence of pressure sores, shorter hospital stays and large cost savings.

Clinical considerations

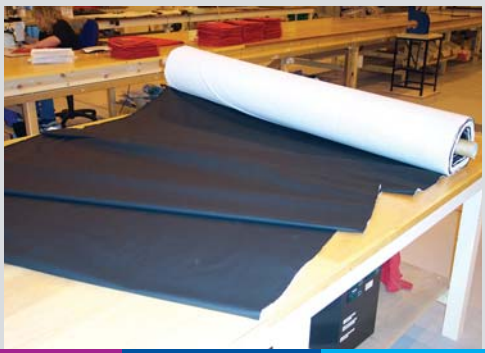
The thermoregulatory system is affected from the onset of anaesthesia, with the fastest fall in temperature during the initial period. This makes hypothermia a real possibility, even for short surgical procedures. Similarly, trauma and other emergency situations often lead to rapid depression of core temperature.

There is little dispute that prevention of hypothermia leads to better outcomes for the patient and savings for the hospital. It has also been well established that maintenance of normothermia is much better than re-warming. The continuing number of publications advocating greater use of warming will inevitably increase the need to change routine clinical practice in all areas where the risk of hypothermia exists.

Warming technology

A range of technologies have been used for patient warming over the years. Traditional methods all have their shortcomings in terms of performance, convenience or cost. Inditherm have revolutionised the technology for warming and produced a system that out-performs the traditional methods in all respects.

Inditherm's patented flexible carbon polymer technology has been used as an innovative solution for preventing hypothermia. The systems combine more effective thermal transfer with simplicity of use that makes them superior to other methods currently available. The technology provides significant financial benefits, making routine warming of all patients affordable and convenient.



Inditherm's unique carbon polymer heating material

Features and Benefits

Inditherm Medical have used their carbon polymer technology to produce a patient warming system that is practical, convenient and very effective. Key features & benefits include:

Best warming performance

- Uses latest patented technology.
- High thermal transfer characteristics.
- Clinically proven.
- Better performance than forced air warming and other traditional methods.

Ultimate convenience

- Compact control unit fits on anaesthetic trolley or drip stand.
- Lightweight and silent.
- X-ray translucent.
- Simple to use.

Unhindered access to patient

- Fits under patient, yet warms better than forced air systems.
- No warming of surrounding environment or surgical team.

Prevents pressure sores

- Pressure relief built-in, under the heating surface.
- Proven to out-perform gel pads and standard operating table mattresses.

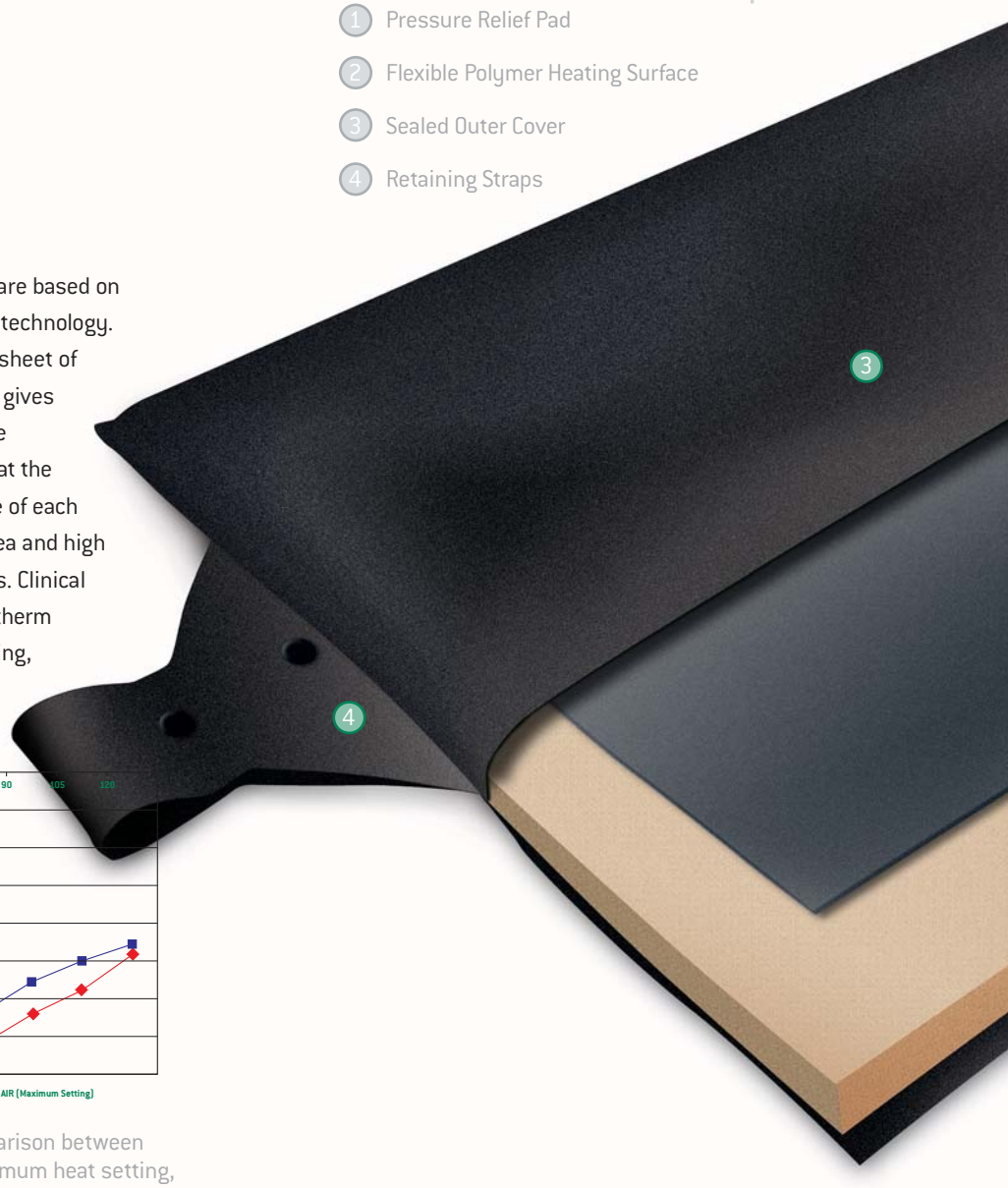
Significant cost savings

- No disposables, no leaks, very low maintenance.
- Warm all patients at no extra cost.
- Better overall outcomes and shorter post-operative stays.

Safe & robust

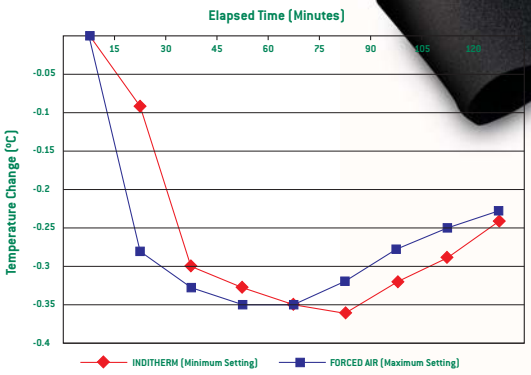
- Low voltage operation.
- Fully sealed with RF welded seams.
- Durable, latex-free cover.
- Fully approved to medical device standards.

1. Pressure Relief Pad
2. Flexible Polymer Heating Surface
3. Sealed Outer Cover
4. Retaining Straps



Warming Performance

Inditherm's warming products are based on their patented flexible polymer technology. Heat is produced by a uniform sheet of soft conductive material which gives even warming across the whole surface. The design ensures that the mattresses mould to the shape of each patient, giving large contact area and high thermal transfer characteristics. Clinical trials have shown that the Inditherm system out-performs air warming, giving best efficacy available.[5]



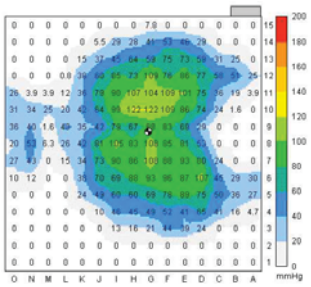
▲ Graph illustrating the comparison between Inditherm Mattress at mimimum heat setting, and forced-air patient warming device operating at its maximum heat setting.

Pressure Relief

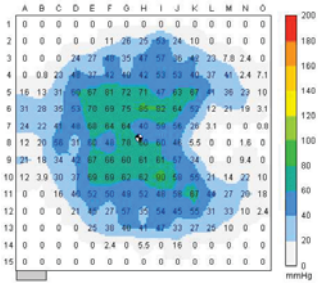
Using flexible polymer technology enables the integration of a viscoelastic pressure relief pad into the mattress, under the heating surface. This ensures that there is no attenuation of the warming performance in addition to helping to prevent pressure sores. A clinical study has shown that the Inditherm system provides better pressure relief than gel pads or standard operating table mattresses.[6]

Illustrating the benefits of Inditherm's inherent pressure-relieving properties when compared to gel pads.

▼ Figure 1.0 - Common Gel Pad



▼ Figure 1.1 - Inditherm Mattress



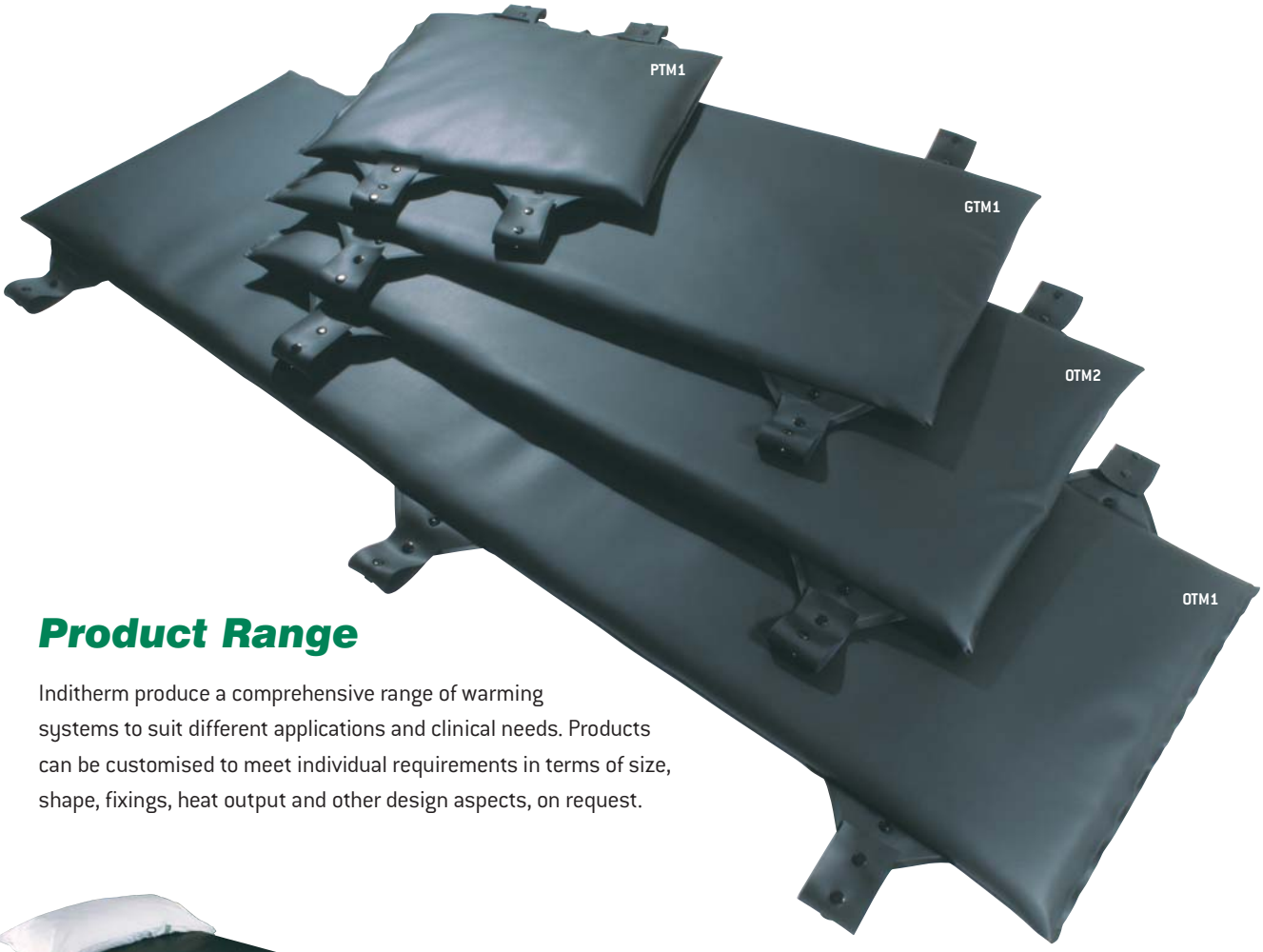
Cost Savings

The Inditherm mattresses are completely re-usable and can be cleaned in exactly the same way as the existing operating table surface. Experience has shown that the saving on cost of disposable air warming blankets typically pays for an Inditherm system in less than three months – and the system can be used on all patients with no extra cost or inconvenience. There are none of the maintenance, reliability or running costs associated with water mattresses.

The benefits of preventing hypothermia are well documented [1,7,8] and have shown that post-operative costs can be significantly reduced by warming patients. The wider use of warming facilitated by the Inditherm system should yield additional savings that are an order of magnitude higher than the reduction in consumable costs.

Convenience and Simplicity

There is nothing obstructing the surgical field, nor is there any warming of the surrounding area or surgical team, when using Inditherm products. No time is wasted setting up or adjusting the system and no additional items such as gel pads are required. Mattresses are lightweight for ease of handling and fully sealed, making them simple to clean using existing infection control procedures. The control unit is compact and easily accommodated, with simple temperature control and clear display. The mattress runs at low voltage, ensuring safety for the patient and staff, and is X-Ray translucent.



Product Range

Inditherm produce a comprehensive range of warming systems to suit different applications and clinical needs. Products can be customised to meet individual requirements in terms of size, shape, fixings, heat output and other design aspects, on request.

▲ OTM1

▼ GTM1

Applications

Mattresses and blankets are available to suit the full range of surgical procedures. The system has been proven to meet the demands of vascular, cardiothoracic, orthopaedics, burns, plastics, urology, gynaecology, paediatrics, maxillo-facial and general surgery – and more.

The Inditherm patient warming range is well suited for use in the Recovery area, Intensive Care Unit and Emergency department. Its low voltage operation also makes it ideal for patient transport.

Technical Specifications

Mattress Construction:

	Inditherm® flexible polymer heating sheet, with 18mm viscoelastic foam pressure relief pad under and 205g.m^{-2} expanded polyester comfort lining over.
	Encapsulated in latex-free, nylon fabric cover, with non-microporous polyurethane coating, fully sealed with RF welded seams.
	In-built temperature sensor and over-temperature thermal cut-out.
	Connection cable, 200 mm long, with strain relief, fully sealed entry grommet and IP61 rated waterproof connector.
	Sensors and cables let into pressure relief pad for patient comfort.

Temperature Output Range:

	37°C to 40°C (99°F to 104°F) in steps of 1°C (2°F)
	Over-temperature safety cut-out at 43°C (109°F)

Power:

Control Unit:	230 Vac, ±6%, 50Hz or 110 Vac, ±6%, 60Hz 75 W
Mattresses & Blankets:	24 Vac (nom.) 25 W to 65 W, depending on size

Dimensions:

Control Unit: 160 x 240 x 230 mm

Mattresses & Blankets:

Type	Standard	Narrow
OTM1	1900 x 585 x 40 mm	1900 x 535 x 40 mm
OTM2	1200 x 585 x 40 mm	1200 x 535 x 40 mm
GTM1	1070 x 585 x 40 mm	1070 x 535 x 40 mm
PTM1	560 x 500 x 40 mm	
OTB	500 x 1070 x 40 mm	
RB1	1660 x 800 x 40 mm	

Other dimensions available on request

Cable Length: 4 m

Compliance:

	EN60601-1, Class IIa, Type BF
	EN60601-2
	93/42/EEC, EEC Medical Devices Directive
	73/23/EEC, EEC Low Voltage Devices Directive

Environmental:

Ambient Temperature (Operating):	15°C to 40°C (59°F to 104°F)
Ambient Temperature (Storage):	-10°C to 55°C (14°F to 131°F)
Relative Humidity:	30% to 70%

Due to continuous product development the company reserves the right to change these details without notice.

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INDITHERM
Medical

Houndhill Park
Bolton Road
Rotherham
S63 7JY
United Kingdom

Telephone: +44 (0)1709 761000
Fax: +44 (0)1709 761066

Email: sales@indithermplc.com
Website: www.inditherm.com/medical

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