

# *TraumaTherm*

*Patient Warming Systems  
for all emergency situations*

Innovative technology for better patient care



**INDITHERM**  
Medical

# TraumaTherm

## Improved patient warming for better clinical outcomes

Inditherm have established themselves as experts in heating and warming solutions for many different industries and applications. Their innovative, patented technology now leads warming practice for patient care in a wide range of clinical situations.

### Clinical Considerations

In some emergency cases planned hypothermia is considered beneficial, however the majority of patients will enjoy better outcomes, less pain and reduced anxiety if hypothermia is prevented by active warming<sup>1,2</sup>. There are further benefits of early warming for those requiring surgery as a result of their condition, such as lower mortality, wound infections and blood loss and shorter recovery times<sup>3,4</sup>.

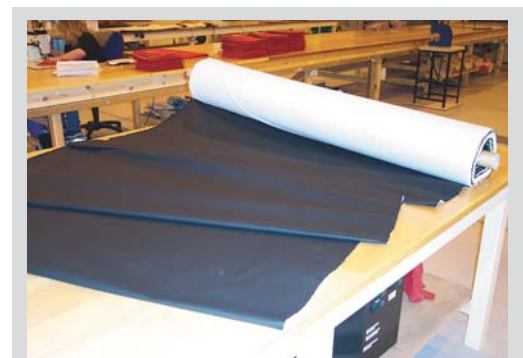
There is a real risk of hypothermia following accidents and in many acute illnesses. This may be due to shock, exposure, blood loss, suppression of the thermoregulatory system or a combination of these. Generally, the sooner normal core temperature can be restored the better the outcome for the patient.

### Warming Technology

In many emergency situations active warming of the patient has been impractical with traditional technologies. This is particularly the case during ambulance transport and in the emergency room when extensive access to the patient is required. 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 the treatment and prevention of hypothermia. The *TraumaTherm* systems combine more effective thermal transfer with convenience and simplicity of use, making them superior to other techniques currently available.

The low power consumption and compact control unit are ideal in the transport situation, whilst the ability to warm effectively from under the patient is invaluable when easy or continual access is necessary.



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 highly effective. Key features & benefits include:

### Exceptional performance

- Uses latest patented technology
- High thermal transfer characteristics
- Clinically proven
- Better performance than traditional warming methods

### Practical & convenient

- Unhindered access to the patient
- Simple to use
- X-ray translucent
- Compact, lightweight and silent
- Easy to clean

### Clinical Benefits

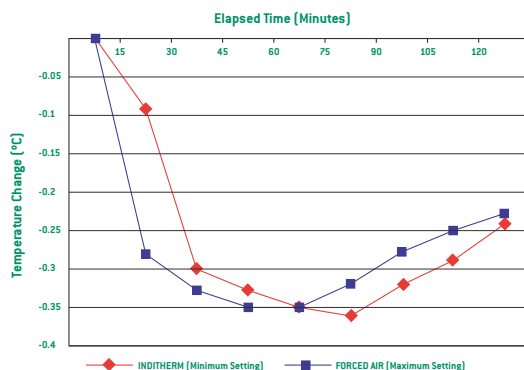
- Reduces pain and anxiety, increases comfort
- Less complications, better outcomes, and quicker recovery
- Pressure relief built-in, under the heating surface

### Safe & robust

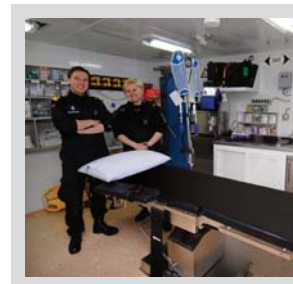
- Low voltage operation.
- Durable, fully sealed cover
- No water or circulating air
- Independent thermal safety cut-out

## Warming Performance

*TraumaTherm* is based on Inditherm's patented flexible polymer technology. Heat is produced by a uniform sheet of soft conductive material, which gives completely 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 matches or out-performs air warming, giving best efficacy available<sup>5,6</sup>.



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



▲ Inditherm system on board Nautilus-class submarine, showing TraumaTherm mattress system in a number of active combat scenarios.

## Convenience & Simplicity

There is nothing obstructing access to the patient when using *TraumaTherm* mattresses, making it completely practical in emergency situations. No time is wasted setting up or adjusting the system. Mattresses and blankets are lightweight for ease of handling; they run at low voltage, ensuring safety for patients and staff, and are X-Ray translucent. The control unit is compact, with integral clamp, simple temperature control and clear display.

The mattress has an integrated viscoelastic pressure relief pad, under the heating surface. This ensures that there is no attenuation of the warming performance in addition to helping increase patient comfort and prevent pressure sores.

## Product Range

There is a comprehensive range of *TraumaTherm* mattresses and blankets, to suit different situations. Integral straps are provided where appropriate, to allow securing of the mattress to a stretcher or trolley. Mattresses fit under the patient for unrestricted access, whereas blankets can be placed over the patient where practical considerations make this more convenient. Products can be customised to meet individual requirements in terms of size, shape, fixings, and other design aspects, on request.

The Control Unit is compact and light-weight, with an integral clamp for pole mounting. Operation is simple and is completely silent. The units are completely interchangeable and can be used with any mattress or blanket.



## Applications

The *TraumaTherm* system is designed specifically for performance in the emergency room, ambulances, and other rescue, transport and critical care applications. The design and method of operation make it more effective and practical than other technologies, and is ideally suited to the demands of emergency situations.

Inditherm patient warming systems are also in widespread use by international armed forces, including active service in conflict zones.

The Inditherm *Alpha* systems are used extensively for perioperative patient warming, including the full range of surgical specialties and procedures. The *CosyTherm* range is specifically designed for neonatal applications.



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# Technical Specifications

## Mattress Construction:

Inditherm® flexible polymer heating sheet, with 18mm foam pressure relief pad under and 305g.m<sup>2</sup> expanded polyester comfort lining over.

Encapsulated in durable, latex-free nylon fabric cover, with non-microporous polyurethane coating, 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.

## Blanket Construction:

As above, with pressure relief pad replaced by quilted polypropylene/polyester thermal insulating backing.

## Temperature Range:

User-selected ranges within the band:  
 37°C to 40°C (99°F - 104°F) in steps of 1°C (2°F)  
 Over-temperature safety cut-out at 43°C (109°F)

## Power:

**Control Unit:** 230 Vac or 110Vac or 100Vac (±6%), 50Hz/ 60Hz  
 75 W

**Mattresses:** 24 Vac (nom.), 50Hz  
 25 W to 65 W, depending on size

Dimensions:	Part:	Size:	Weight:
<b>Control Unit:</b>	TCU1	160 x 240 x 230 mm	4.1 kg
<b>Mattresses:</b>	TTM1	1800 x 460 mm	2.4 kg
	TTM2	1800 x 585 mm	3.2 kg
	TTM3	1500 x 585 mm	2.5 kg
	GTM1	1070 x 585 mm	1.8 kg
	RB1	1660 x 800 mm	1.5 kg
	RB2	1660 x 1200 mm	2.2 kg
	Other dimensions available on request		

**Cable Length:** 3m

## Compliance:

EN60601-1, Class IIb, Type BF

EN60601-1-2

EN60601-2-35

UL 60601

93/42/EEC, EEC Medical Devices Directive

73/23/EEC, EEC Low Voltage Devices Directive

## Environmental :

**Ambient Temperature (Operating):** 10°C to 40°C (50°F to 104°F)

**Ambient Temperature (Storage):** -10°C to 55°C (14°F to 131°F)

**Relative Humidity:** 30% to 75%

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

## References

**1 The role of systemic warming of "at risk" surgical patients during the initial hospital phase.**

Satheesan,K.S., Whetter,D., Melling,A., Emerton,D., Leaper,D.  
Emergency Medicine Journal 2007;24:375-382

**2. Active warming of critically ill trauma patients during intrahospital transfer: a prospective, randomized trial.**

Scheck,T., Kober,A., Bertalanffy,P., Aram,L., Andel,H., Molnar,C., Hoe,K. Wien Klin Wochenschr., 2004 Feb 16;116(3):94-7

**3. Perioperative normothermia to reduce the incidence of surgical-wound infection and shorten hospitalisation.**

Kurz,A., Sessler,D.I., Lenhardt,R.  
New Engl J Med 1996; 334:1209-1216

**4 Randomized clinical trial of perioperative systemic warming in major elective abdominal surgery.**

Wong,P.F., Kumar,S., Bohra,A., Whetter,D., Leaper,D.  
Br. J. Surg. 2007; 94:421-6

**5. Comparison of the Inditherm Mattress and forced-air patient warming device during major abdominal and orthopaedic surgery.**

Baxendale,B., Giovanelli,M. (2000)  
Dept. of Anaesthesia, University Hospital, Queens Medical Centre, Nottingham, UK.

**6 Is a warming mattress as effective as forced air warming in preventing peri-operative hypothermia.**

Harper,C.M.  
Anesthesiology, 2007; 107: A92



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