

EVALUATION

MHRA 03129-0

Pressure reducing mattresses

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Pressure reducing mattresses

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How to use this report

This is the first in a series of reports relating to static mattresses, which are defined for these purposes as mattresses with no actively powered parts.

This first issue, MHRA 03129-0, constitutes a description and rationale for the criteria and test methods used to evaluate these products.

Following issues, MHRA 03129-1 onwards, each constitute the disclosure of results pertaining to one mattress. This format allows for additional mattresses to be evaluated subsequently and added to the series. This makes use of the standardised and reproducible nature of the test methods employed, to allow updates as new mattresses come on the market. As well as improving the currency of the series, this will make it easier for readers to compile selectively sets of reports that are relevant to their particular interests.

Introduction

This protocol for the evaluation of static mattresses is the result of a consultation process conducted by the Aspire Centre for Disability Research (ACDS), University College London (UCL), on behalf of the Medicines and Healthcare Products Regulatory Agency (MHRA). The aim is to establish a broadly acceptable set of criteria and test methods for static mattresses to reflect the interests of the very diverse set of interested parties.

Definition

Static mattress: mattress with no actively powered parts.

Note. Examples of this may be a foam mattress, or a non-powered air-filled mattress.

Protocol development process

Representatives of the following institutions and groups were consulted during the process.

- Manufacturers of hospital mattresses and/or overlays currently supplying the NHS.

Note: each manufacturer was asked to designate a single point of contact within the organisation to represent the views and interests of the company.

- NHS Purchasing and Supplies Agency (PASA).
- Health Professionals including the following: tissue viability nurses; physicians; and biomedical engineers with an interest in issues relating to pressure ulcers.
- Consumers, including patients occupying hospital mattresses.

After initial consultations, a provisional outline protocol was drafted and circulated to the groups for comment. Comments were collated over a period of weeks, and the protocol was adapted accordingly. Representatives of the above groups were invited to a public presentation and discussion of the revised protocol. Following these discussions, further revisions were made to the protocol.

Pressure distributive properties

A key factor in the prevention of pressure ulcers is the appropriate distribution of pressures over the areas that support the body. The biomechanical causes of pressure ulcers are complex, and as yet not fully understood, but high peak interface pressures have been shown to contribute to causation.

Pressure distributive properties are assessed using the UCL Phantom (developed by the RAFT Institute) (See figure 1), a full technical description of which is published in the scientific literature [1]. This is a life-sized articulated dummy with soft tissues, and bony prominences within. The Phantom has an automated positioning system, which places it in exactly the same way on every mattress. Pressure measurements are made using a highly flexible pressure-mapping array, to locate the peak pressures (which occur in different anatomical regions on different mattresses).

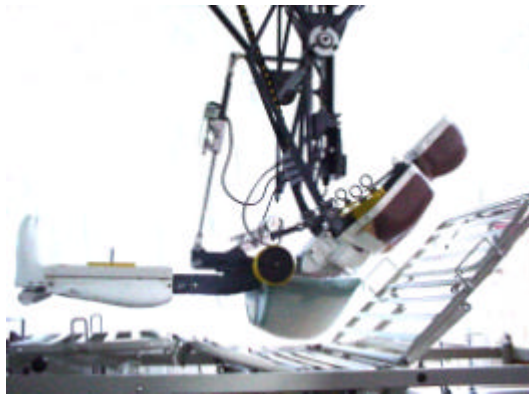


Figure 1. UCL Phantom

The surface of the Phantom is warmed to 35°C using special heated and temperature-controlled skin.

Tests are performed with the mattress on a 4-section profiling bed in standard position according to EPUAP draft guidelines, with the backrest inclined to 45°, the gatch section elevated to 20°, and made up with a loose sheet. The Phantom is lowered onto the mattress in standard 45° rigid attitude, and then the hip and knee joints are released.

The Phantom is left to dwell for 10 minutes on the mattress to allow for initial stabilisation of the mattress.

Multiple measurements are made to obtain confidence intervals for the peak pressures in the pelvic and heel regions. Low peak interface pressure is deemed to be the most valid measure of pressure reducing properties according to current evidence at the time of publication [2].

Pressure maps (see figure 2) reveal visually much information besides peak pressure about the way pressure is distributed. A picture of the pressure map is therefore also provided to allow readers to judge features of the pressure distribution that may be of particular interest to them (eg contact area). The pressure maps are provided in grayscale, according to the recommendations of the International Standards Organisation Working Group WG11. 10 mmHg incremental isobar contours are provided to judge pressure gradients.

Higher pressure = darker shade

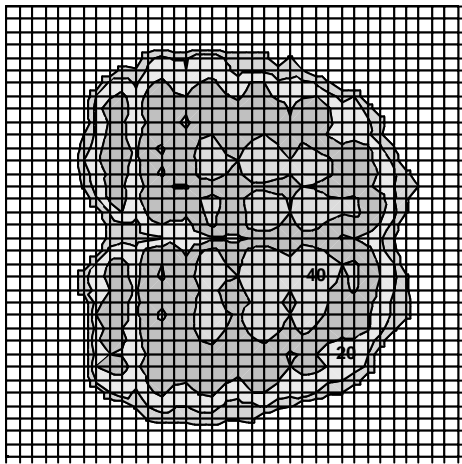


Figure 2. Pressure map with 10 mmHg Isobars

Report outputs: pressure distributive properties

- Peak interface pressure pelvic area (95% confidence limits) (mmHg)
Lower value suggests better pressure distribution
- Peak interface pressure heels (95% confidence limits) (mmHg)
Lower value suggests better pressure distribution
- Grey-scale pressure map (10 mmHg Isobars)

Heat and water vapour transfer properties

The ability of a mattress to dissipate body heat and moisture makes an important contribution to comfort. Excessively moist conditions at the

skin/mattress interface are also known to macerate the skin, exacerbating the risk of mechanical damage to the skin.

ACDS has a controlled environment testing facility with a thermal-guarded sweating hot-plate [3]. This permits accurate measurements to be made of both heat transfer rates and water-vapour transfer rates through the product (See figure 3).

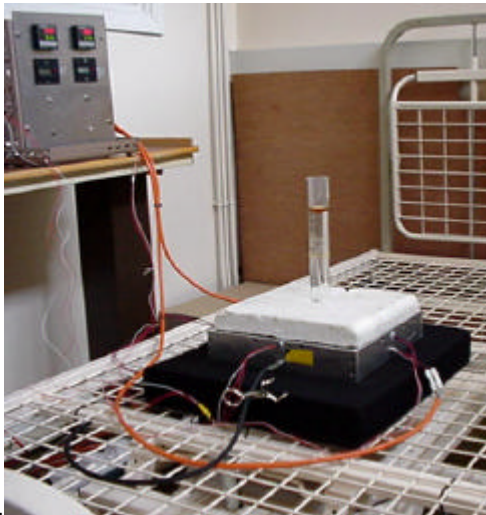


Figure 3. Heat and water vapour transfer measurement apparatus

The hot-plate is maintained at constant temperature and humidity at the interface to the mattress, and losses of heat and water vapour into the mattress are electronically monitored simultaneously.

Tests are conducted using the whole mattress construction, complete with cover. It has been shown that surface microclimate is determined by the transfer properties of the entire system, and cannot be inferred from data relating to individual components of the system, such as the cover.

Report outputs: heat and water vapour transfer properties

- Heat transfer rate ($\text{Wm}^{-2}\text{K}^{-1}$)
Higher value indicates cooler skin microclimate
- Water vapour transfer rate ($\text{gm}^{-2}\text{day}^{-1}$)
Higher value indicates drier skin microclimate

Fatigue longevity

Mattresses are known to have a finite life span. Their pressure-distributive properties degrade substantially over a period of years. Significant changes in these properties, if left undetected, may lead to increased risk of pressure ulcers.

Examination of the actual fatigue life of mattresses in service is impractical for the purposes of this protocol.

A representative sample of mattresses would have to be monitored in service for several years, by which time the sample would no longer be representative of the mattresses on the market. In the interests of currency, the preferred approach is to subject mattresses to an accelerated, artificial fatigue cycle.

Products undergo 100,000 repetitive indentations using a cylindrical indenter of 80 mm diameter. Force-indentation tests using a Quince 2 (See figure 4) mattress audit device [4] (having a matching 80 mm cylindrical indenter) quantify changes in mattress properties relative to the starting point. A high percentage indicates a large change in indentation properties after fatigue.



Figure 4. Quince 2

This measure cannot be directly extrapolated to give an estimate of the service life of the mattress because the fatigue conditions are artificial and not accurately representative of the fatigue of a mattress in use. It does however allow indicative comparisons to be made between mattresses.

Report outputs: longevity

- %Change in Quince2 bottoming force after 100,000 indentations

Lower value suggests better longevity

Other information

In addition to the laboratory results, relevant information from the manufacturer is provided. This includes fire retardancy status and turning instructions.

Fire

NHS Estates guidelines stipulate conformity to fire retardancy standard BS7177 (February 1988), which is synonymous with BS6807. This is a composite test, which for hospital mattresses requires flame retardancy of the composite structure, not necessarily the intrinsic flame retardancy of the fillings. A separate standard, BS5223, stipulates testing according to Statutory Instrument (SI) 1324 (crib 5), which relates to the fire retardancy of the foam fillings. As of January 2004, an amendment to BS7177 has stipulated that fillings must comply with S.I. 1324. Foam, in this case, must be inherently ignition resistant to Source 5. The MHRA 03129 series reports will provide information on the conformity to the above standards, as provided by the manufacturer.

Turning requirements

In some cases, manufacturers recommend that mattresses be turned in order to alternate regions of high loading and so extend the life of the product. On some mattresses, a label is provided at each end of the mattress cover providing a schedule for turning. In the MHRA 03129 series of reports, the term 'rotating' is used to denote turning the mattress so that the head and foot ends are interchanged, but the mattress is not turned upside-down. The term 'flipping' is used to denote turning the mattress upside-down. If acceptable mattress longevity can be achieved without flipping and/or rotating, this is seen as an advantage from a 'lifting and handling' perspective.

Other observations

A space is provided on the report for other remarks that specifically relate to the mattress in question. These may concern for example the construction, cover access or cover labelling.

Report outputs: other information

- Fire retardancy

Information provided by manufacturer

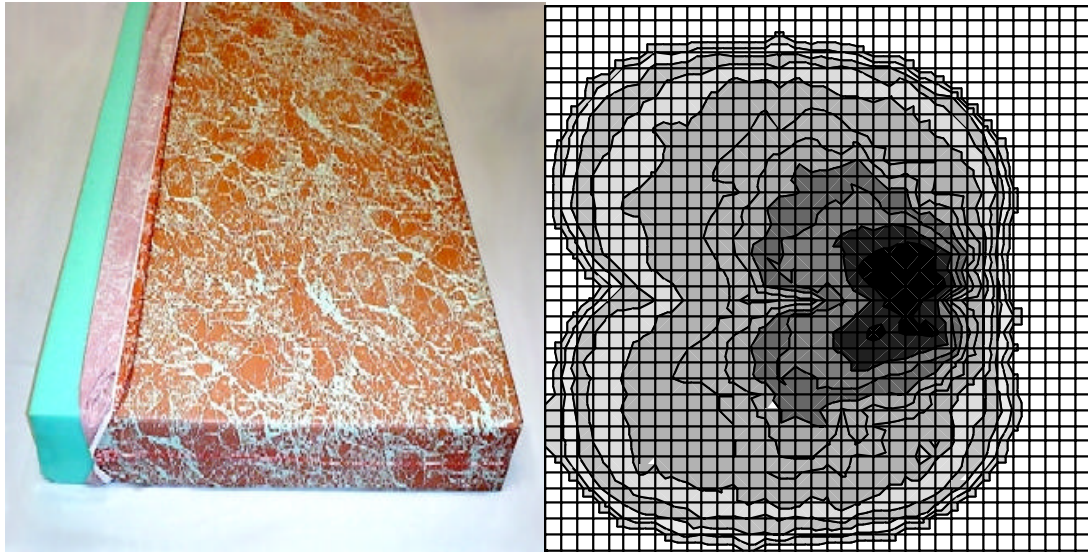
- Turning requirements

Rotate / Flip / None

- Other observations

References

- 1 Bain DS, Nicholson N, Scales JT. A Phantom for the Assessment of Patient Support Systems. *Journal of Medical Engineering and Physics* 1999; 21: 293-301.
- 2 Bain D, Ferguson-Pell M, McLeod A. Evaluation of mattresses using interface pressure mapping. *J Wound Care* 2003; 12 (No. 6): 231-235.
- 3 Nicholson GP, Scales JT, Clark RP, et al. A method for determining the heat and water vapour permeability of patient support systems. *Med Eng Phys* 1999; 21: 701-712.
- 4 Bain DS, Ferguson-Pell MW, Davies PJ. In-service mattress testing of hospital mattresses using the Quince mattress tester. *J Tissue Viability* 2001; 11: 161-165.

NHS ECONOMY**Pressure Map (10mmHg Isobars)**

This mattress is manufactured under tender according to NHS specifications. The construction comprises a single piece of high resilience combustion modified foam, covered by a non-stretch waterproof fabric. Cover access is via a zip on one side only, with no protective flap to prevent ingress. No labelling or instructions of any kind are provided.

Peak Interface Pressure (pelvis)	124 +/-5 mmHg
Peak Interface pressure (heels)	136 +/-23 mmHg
Heat transfer rate	18.1 +/-0.2 Wm ²
Vapour transfer rate	413 +/- 7 gm ² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	5 %
Fire retardancy	BS 6807:1996 Source 0, 1 and 5
Turning	Rotate and flip

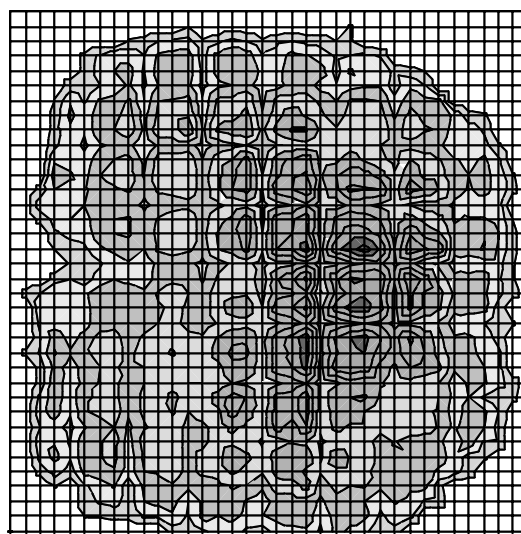
Evaluation

This is part of a series of reports relating to static mattresses, which are defined for these purposes as mattresses with no actively powered parts. The first issue, MHRA 03129 - 0, constitutes a description and rationale for the criteria and test methods used to evaluate these products.

Enquiries

For information on the SM series, please contact MHRA, Hannibal House, Elephant & Castle London SE1 6TQ. Tel: 020 7972 8181 E-mail: des@mhra.gsi.gov.uk

PENTAFLEX



Pressure Map (10mmHg Isobars)

The Pentaflex comprises a single block of high resilience combustion modified foam, with profiled squares in the surface that compress individually. Turning and flipping are recommended to improve longevity, and a schedule for this is printed on the cover. Cover access is via a zip on 2 sides, with no protective flap to prevent ingress. Cleaning instructions are printed on the cover. A space is provided on the cover for audit records.

Peak Interface Pressure (pelvis)	88 +/-6 mmHg
Peak Interface pressure (heels)	84 +/-12 mmHg
Heat transfer rate	26.2 +/-0.2 Wm ⁻²
Vapour transfer rate	646 +/-8 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	5 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning*	Rotate and flip
Supplier:	
Huntleigh Healthcare Ltd	
310 - 312 Dallow Road, Luton, Bedfordshire	
United Kingdom, LU1 1TD	
*Information provided by manufacturer	

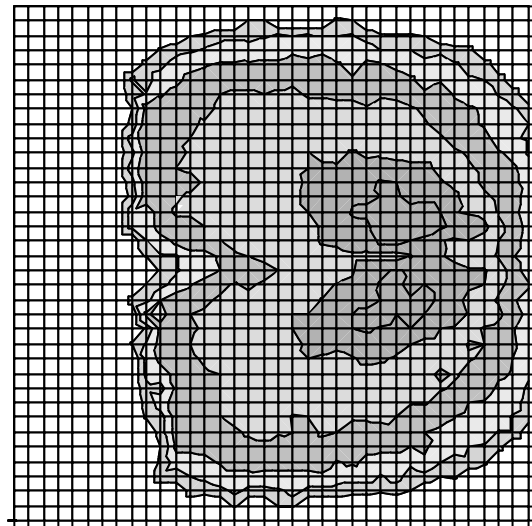
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KAYMED



Pressure Map (10mmHg Isobars)

The Kaymed comprises a surround and base of high resilience combustion modified foam, with an insert of temperature-sensitive viscoelastic foam. The heel section has a chequered profile cut into the viscoelastic layer, effectively reducing the surface indentation hardness in that area. Rotation only is required, and the top and bottom surfaces are clearly marked. Cover access is via a zip on two sides, with a protective flap to prevent ingress. Cleaning instructions are printed on the cover. Seams are stitched and welded to prevent ingress.

Peak Interface Pressure (pelvis)	64 +/-4 mmHg
Peak Interface pressure (heels)	67 +/-12 mmHg
Heat transfer rate	23.5 +/-0.1 Wm ⁻²
Vapour transfer rate	528 +/-8 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	7 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning*	Rotate only
Supplier:	
Kaymed	
Bluebell Industrial Estate, Naas Road	
Dublin 12, Ireland	
* Information provided by manufacturer	

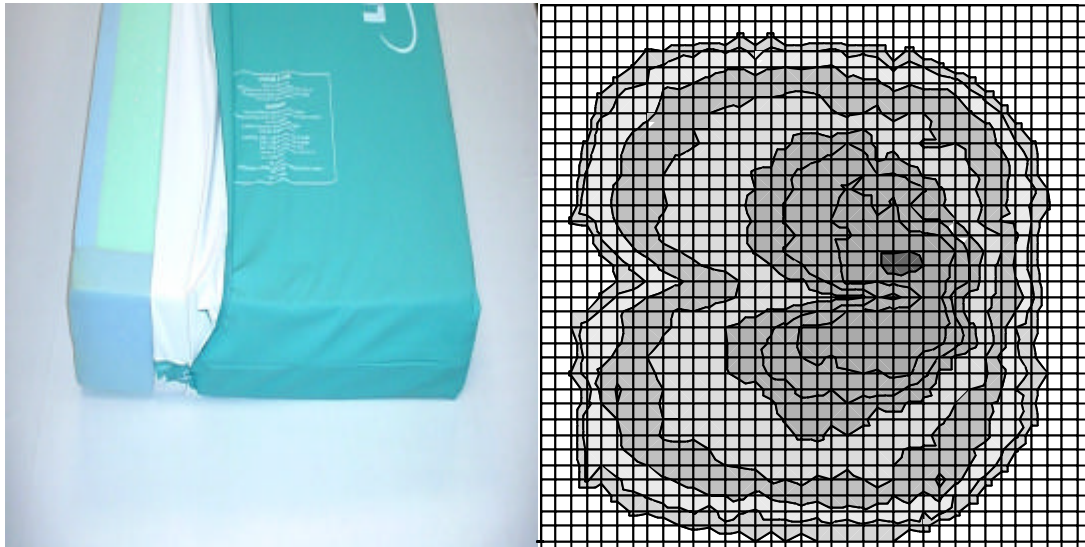
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LINKNURSE



Pressure Map (10mmHg Isobars)

The Linknurse comprises a surround of high resilience combustion modified foam, with an insert of lower density combustion modified foam. Cover access is via a zip on one side only, with no protective flap to prevent ingress. Cleaning instructions are printed on the cover.

It should be noted that the manufacturer also supplies a variant of this mattress which is claimed to be more suitable than this one for profiling beds.

Peak Interface Pressure (pelvis)	82 +/-5 mmHg
Peak Interface pressure (heels)	98 +/-13 mmHg
Heat transfer rate	21.6 +/-0.2 Wm ⁻²
Vapour transfer rate	455 +/- 6 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	4 %
Fire retardancy*	BS 7177 : 1996 medium hazard
Turning*	Rotate and flip
Supplier:	
STM Healthcare	
Azalea Close, Clover Nook Industrial Park	
Alfreton, Derbyshire DE55 4RD	
*Information provided by manufacturer	

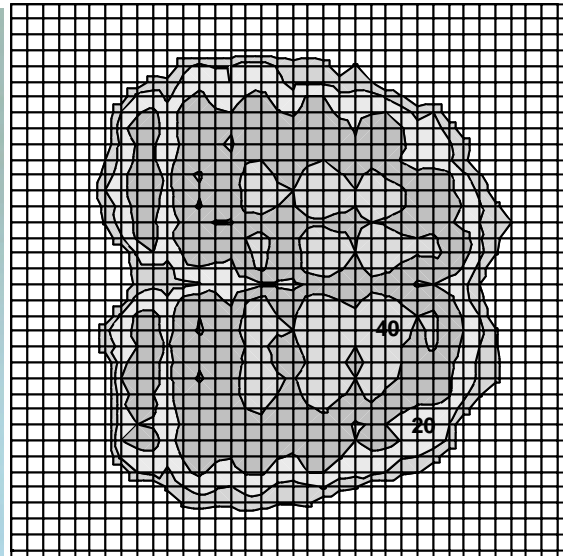
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SOFTFORM PREMIER



Pressure Map (10mmHg Isobars)

The Softform Premier comprises a U-channel of high resilience combustion modified foam, with an inlaid profiled section comprising squares that compress individually. No flipping required, only rotation. Cover access is via a zip on all four sides, with a protective flap to prevent ingress of fluids. Cleaning instructions are printed on the cover. A space is provided on the cover for audit records.

Peak Interface Pressure (pelvis)	59 +/-6 mmHg
Peak Interface pressure (heels)	76 +/-14 mmHg
Heat transfer rate	24.2 +/-0.1 Wm ⁻²
Vapour transfer rate	679 +/-3 gm ² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	6 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning*	Rotate only
Supplier:	
MSS	
Nantgarw Business Park, Cardiff CF15 7QU	
* Information provided by manufacturer	

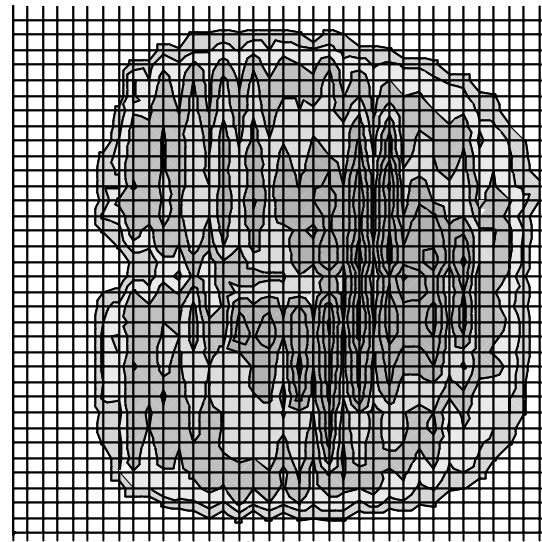
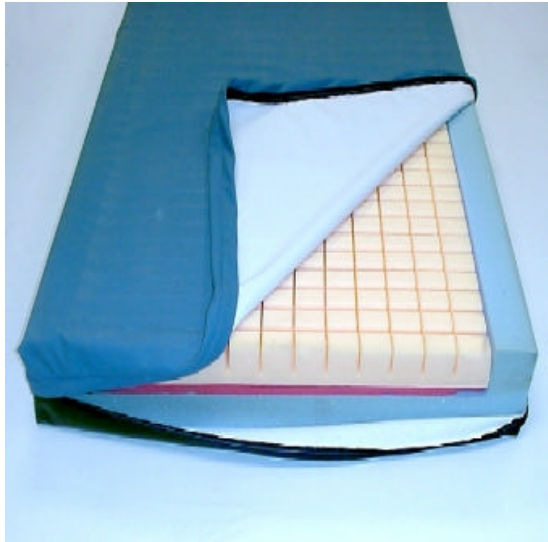
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PRESSUREASE COMBI



Pressure Map (10mmHg Isobars)

The Pressurease Combi comprises a U-channel of high resilience combustion modified foam, with an inlaid profiled section comprising profiled squares which compress individually. Beneath the profiled squared section is a layer of visco-elastic foam. Cover access is via a zip on one end only, with a protective flap to prevent ingress.

Peak Interface Pressure (pelvis)	85 +/-4 mmHg
Peak Interface pressure (heels)	90 +/-1 mmHg
Heat transfer rate	17.2 +/-0.1 Wm ⁻²
Vapour transfer rate	854 +/- 7 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	12 %
Fire retardancy*	BS 6807:1996 Source 0, 1, 5
Turning*	Rotate only
Supplier:	
Sareo Healthcare Ltd	
Unit 1, East Link Business Park	
Carrig Hill, County Cork	
Ireland	
*Information provided by manufacturer	

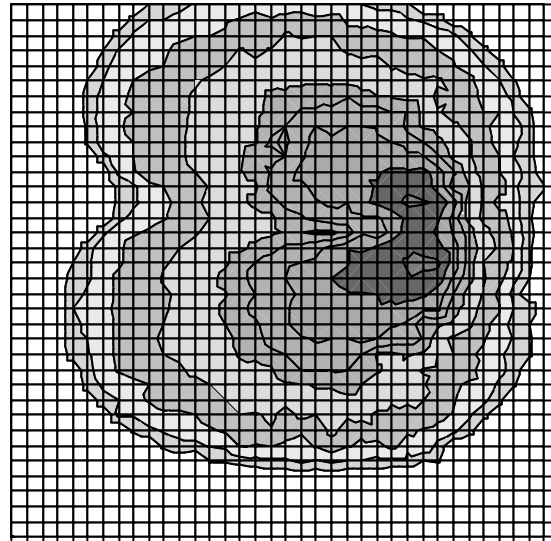
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TEMPUR-MED



Pressure Map (10mmHg Isobars)

The Tempur-Med comprises a base block of high resilience combustion modified foam, with a top layer of visco-elastic foam. No flipping is required; only rotation. Top and bottom are indicated. Cover access is via a zip on two sides, with a protective flap to prevent ingress.

Peak Interface Pressure (pelvis)	95 +/-4 mmHg
Peak Interface pressure (heels)	106 +/-18 mmHg
Heat transfer rate	17.2 +/-0.1 Wm ⁻²
Vapour transfer rate	586 +/- 5 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	13 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning*	Rotate only
Supplier: Tempur UK Ltd Tempur House, 5 Caxton Trading Estate Printing House Lane, Hayes Middlesex UB3 1BE	
*Information provided by manufacturer	

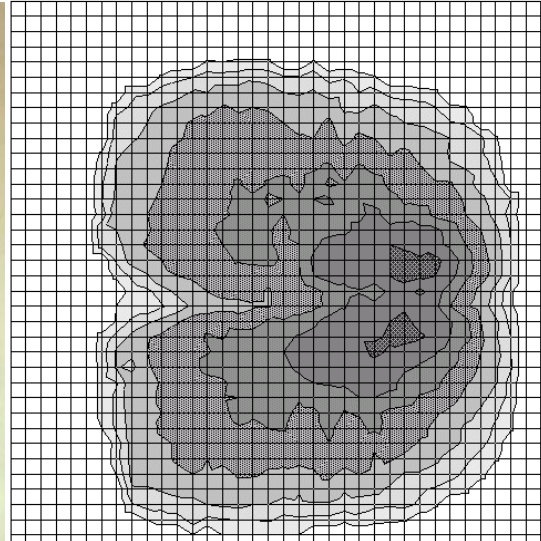
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TRANSFOAM WAVE



Pressure Map (10mmHg Isobars)

The Transfoam Wave comprises a multi-layer foam construction, with high resilience combustion modified foam edge supports. Cover access is via a zip on four sides, with a protective flap to prevent ingress. Cleaning instructions and turning schedule are marked on the cover, together with a space for audit information.

Peak Interface Pressure (pelvis)	79 +/- 3mmHg
Peak Interface pressure (heels)	82 +/-8 mmHg
Heat transfer rate	16.9 +/-0.1 Wm ⁻²
Vapour transfer rate	653 +/- 3 gm ² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	5 %
Fire retardancy*	BS 6807:1996 Source 0, 1, 5
Turning*	Rotate only
Supplier:	
Karomed, Millfield, Chard	
Somerset	
TA20 2BB	
*Information provided by manufacturer	

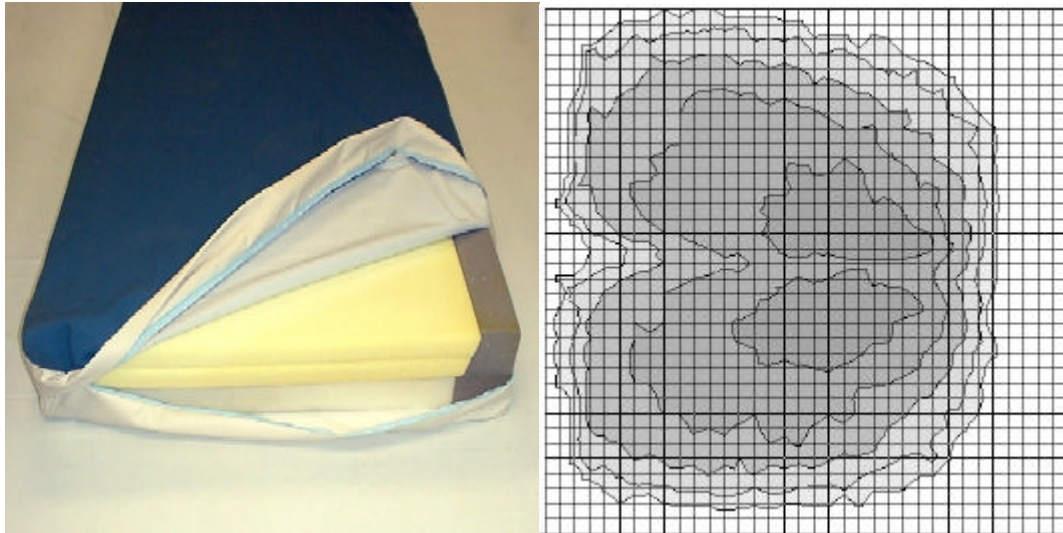
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VITALITY



Pressure Map (10mmHg Isobars)

The Vitality comprises a base layer of high resilience combustion-modified foam, with supporting edges of high density combustion-modified foam. A top layer of viscoelastic foam is un-bonded to the edges, to minimise hammock effects. Cover access is via a zip on one end only, with a protective flap to prevent ingress. Cleaning instructions and turning schedule are marked on the cover. The mattress does not require flipping, and top and bottom are clearly indicated.

Peak Interface Pressure (pelvis)	56.5 +/-3 mmHg
Peak Interface pressure (heels)	77 +/-12 mmHg
Heat transfer rate	19.1 +/-0.1 Wm ⁻²
Vapour transfer rate	721 +/- 7 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	8 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning*	Rotate only
Supplier:	
British Vita Plc	
Middleton, Manchester M24 2DB	
*Information provided by manufacturer	

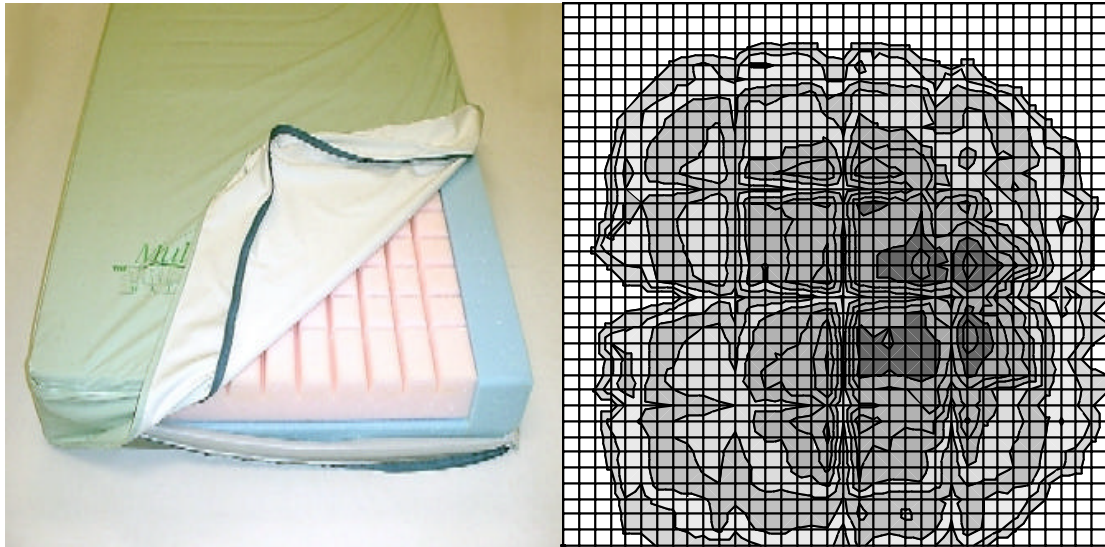
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MULTIFLEX



Pressure Map (10mmHg Isobars)

The Multiflex comprises a U-channel of high resilience combustion modified foam, with an inlaid profiled section of squares that compress individually. No flipping is required; only rotation. Top and bottom are clearly indicated. Cover access is via a zip on two sides, with a protective flap to prevent ingress. Cleaning instructions are marked on the cover.

Peak Interface Pressure (pelvis)	97 +/-6 mmHg
Peak Interface pressure (heels)	87 +/-12 mmHg
Heat transfer rate	21.8 +/-0.1 Wm ⁻²
Vapour transfer rate	764 +/- 3 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	5 %
Fire retardancy*	BS 6807:1996 Source 0, 1 & 5
Turning	Rotate only
Supplier:	
Parkhouse Healthcare Ltd	
Park House, Bradford Road, Birstall	
Batley WF17 9PH	
*Information provided by manufacturer	

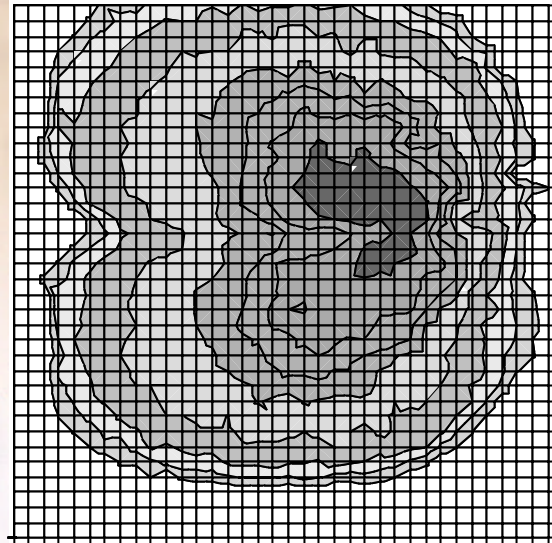
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HARLEY DESIGNER



Pressure Map (10mmHg Isobars)

The Harley Designer comprises a surround of high resilience combustion modified foam, with a base layer insert of lower density combustion modified foam. A top layer of viscoelastic foam is bonded to the top of the base layer. Cover access is via a zip on two sides, with a protective flap to prevent ingress. Cleaning instructions are printed on the cover. The mattress does not require flipping, and top and bottom are clearly indicated. A space is provided on the cover for audit information.

Peak Interface Pressure (pelvis)	86 +/-4 mmHg
Peak Interface pressure (heels)	96 +/-13 mmHg
Heat transfer rate	19.5 +/-0 Wm ⁻²
Vapour transfer rate	664 +/- 3 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	8 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	Rotate only
Supplier:	
Spinal Products Ltd	
Harley House, Hill Road, Ripponden	
Halifax HX6 4DJ	
*Information provided by manufacturer	

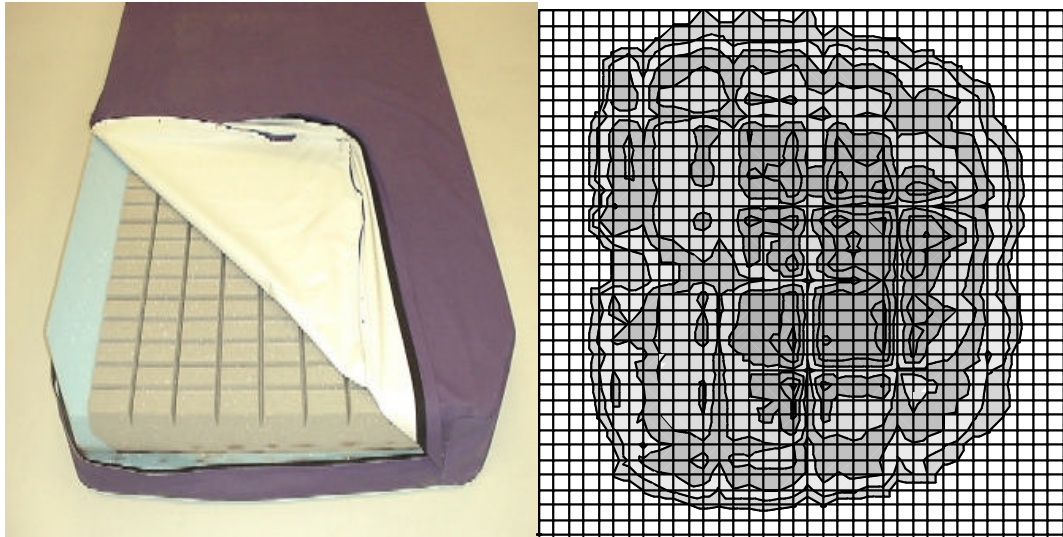
Evaluation

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Enquiries

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CLINISERT



Pressure Map (10mmHg Isobars)

The Clinisert comprises a U-channel of high resilience combustion modified foam, with an inlaid profiled section comprising squares that compress individually. Top and bottom are clearly distinguishable. Cover access is via a zip on three sides, with a protective flap to prevent ingress. Cleaning instructions are printed on the cover.

Peak Interface Pressure (pelvis)	75 +/-4 mmHg
Peak Interface pressure (heels)	85 +/-1 mmHg
Heat transfer rate	19.5 +/-0.1 Wm ⁻²
Vapour transfer rate	655 +/- 4 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	4 %
Fire retardancy*	BS 6807:1996 Source 0, 1, 5
Turning	Rotate only
Supplier:	
Hill Rom Ltd	
Clinitron House , Ashby Park	
Ashby de la Zouch	
Leicestershire	
LE65 1JG	
*Information provided by manufacturer	

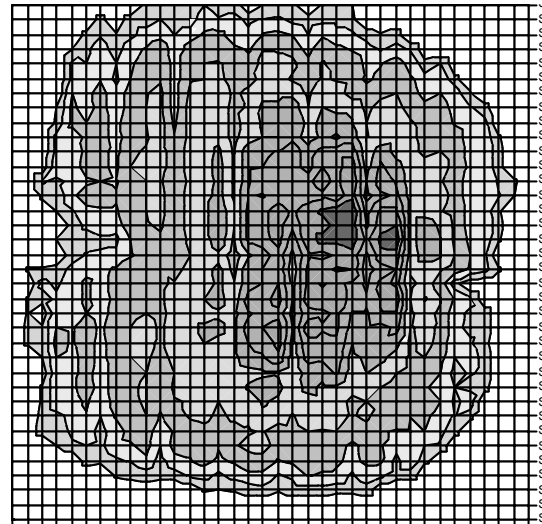
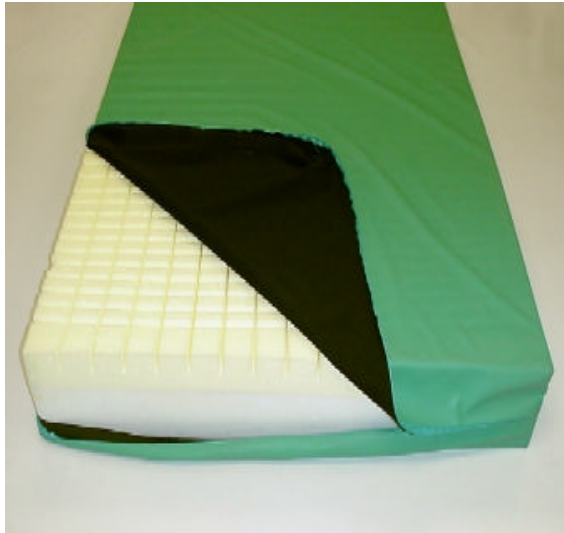
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CONFORMEX



Pressure Map (10mmHg Isobars)

The Conformex comprises a base layer of high resilience combustion modified foam, with a profiled top layer of viscoelastic foam bonded to the base layer. Cover access is via a zip on two sides, with no protective flap to prevent ingress. Cleaning instructions are printed on the cover. **The mattress does not require flipping, but top and bottom are not labelled, and correct orientation is not obvious.**

Peak Interface Pressure (pelvis)	88 +/-6 mmHg
Peak Interface pressure (heels)	87 +/-11 mmHg
Heat transfer rate	18.0 +/-0.2 W/m ²
Vapour transfer rate	530 +/- 2 gm ² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	7 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	Rotate only
Supplier:	
Huntleigh Healthcare Ltd	
310 - 312 Dallow Road, Luton	
Bedfordshire LU1 1TD	
*Information provided by manufacturer	

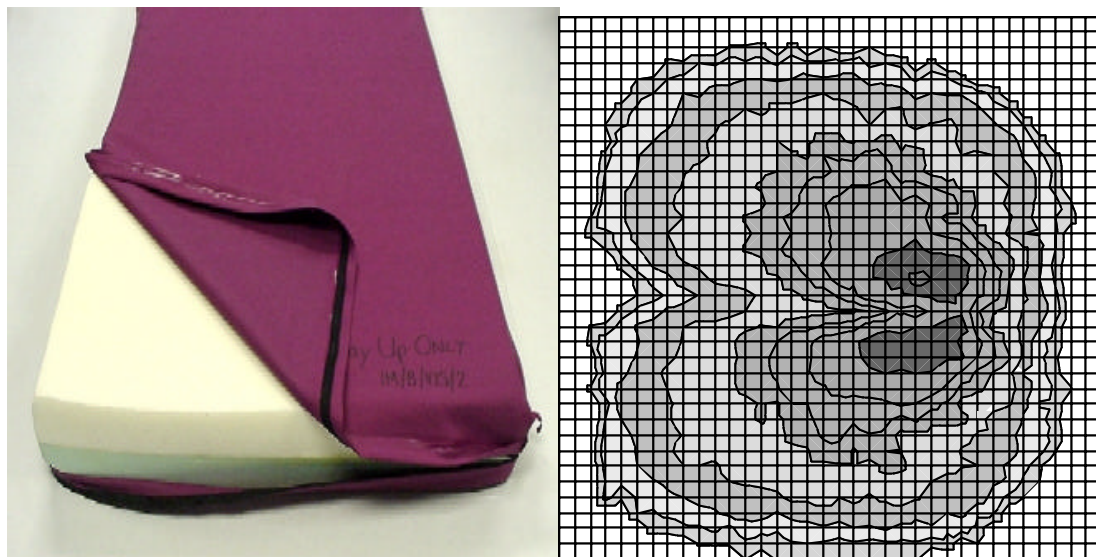
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KOMFI MED



Pressure Map (10mmHg Isobars)

The Komfi-med comprises a base layer of high resilience combustion modified foam, with a top layer of viscoelastic foam bonded to the base layer. It should be noted that the mattress tested and pictured was supplied with an anonymous cover for evaluation purposes, and not the commercially available cover.

Peak Interface Pressure (pelvis)	94 +/-4 mmHg
Peak Interface pressure (heels)	87 +/-11 mmHg
Heat transfer rate	17.8 +/-0.1 Wm ⁻²
Vapour transfer rate	554 +/- 2 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	11 %
Fire retardancy	BS 6807: 1996 Source 0, 1 and 5
Turning	Rotate only
Supplier:	
Spenco Healthcare International Ltd	
45 London Road, Horsham	
West Sussex	
RH16 1AN	

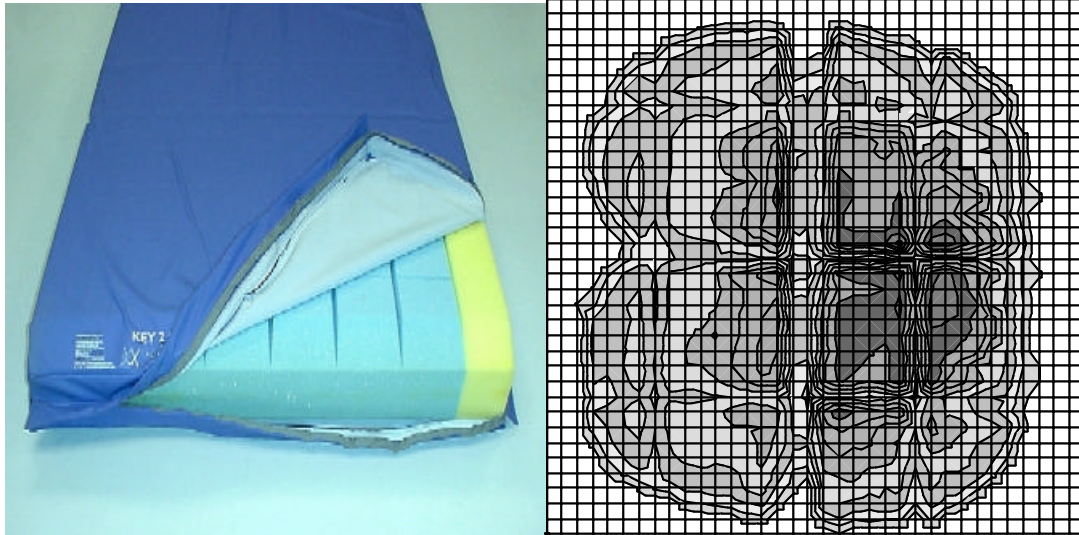
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KEY 2 CARE



Pressure Map (10mmHg Isobars)

The Key 2 Care comprises a block of high resilience combustion modified foam, profiled on both sides with cuts to allow individual squares to move independently. Higher density foam is bonded to the edges for support. Cover access is via a zip on two sides with a protective flap to prevent ingress. Cleaning instructions are printed on the cover. The mattress is reversible, and a turning schedule is printed on the cover.

Peak Interface Pressure (pelvis)	104 +/-3 mmHg
Peak Interface pressure (heels)	83 +/-14 mmHg
Heat transfer rate	18.2 +/-0.1 Wm ⁻²
Vapour transfer rate	624 +/- 2 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	4 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	Rotate and flip
Supplier:	
Pegasus Ltd	
Waterberry drive, Waterlooville	
Hants PO7 7XX	
*Information provided by manufacturer	

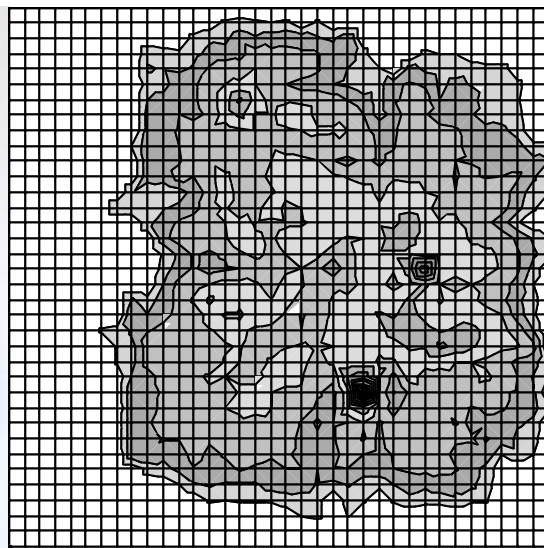
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VICAIR



Pressure Map (10mmHg Isobars)

The Vicair consists of a segmented sack containing novel air-filled pyramids, which slide relative to each other to accommodate deformations of the surface. An additional cover zips onto all four sides of the mattress base, with a protective flap to prevent ingress. The mattress does not require rotation or flipping, and is labelled to indicate correct orientation. No cleaning instructions are printed on the cover.

Peak Interface Pressure (pelvis)	124 +/-4 mmHg
Peak Interface pressure (heels)	103 +/-18 mmHg
Heat transfer rate	34 +/-0.1 Wm ⁻²
Vapour transfer rate	345 +/- 2 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	3 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	No turn
Supplier:	
Vicaïr BV	
Koetserstraat 14, 1531 NX	
Wormer, The Netherlands	
*Information provided by manufacturer	

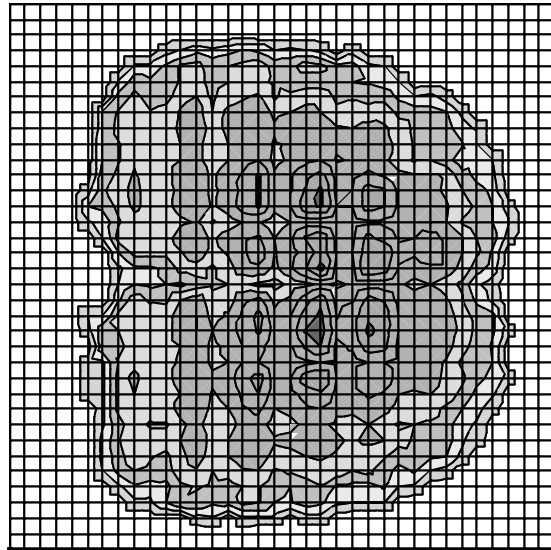
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ORO SUPERLUX



Pressure Map (10mmHg Isobars)

The Oro Superlux consists of a base layer of high resilience combustion-modified foam with cross-cut profiles to facilitate flexion on a profiling bed. On top of the base layer is a layer of viscoelastic foam, profiled with a squared pattern to allow individual squares to deform independently. A unique feature of this mattress is the cut-out surrounding the pillow area, which accommodates the shoulder and arm in side-lying positions, with the expressed purpose of minimising distortion to the spine. No cleaning instructions are printed on the cover.

Peak Interface Pressure (pelvis)	82 +/-4 mmHg
Peak Interface pressure (heels)	86 +/-12 mmHg
Heat transfer rate	18.2 +/-0.1 Wm ⁻²
Vapour transfer rate	717 +/- 2 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	9 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	No turn
Supplier:	
OROMed Healthcare Limited	
1, Clevehurst Close, Stoke Poges	
Buckinghamshire SL2 4EP	
*Information provided by manufacturer	

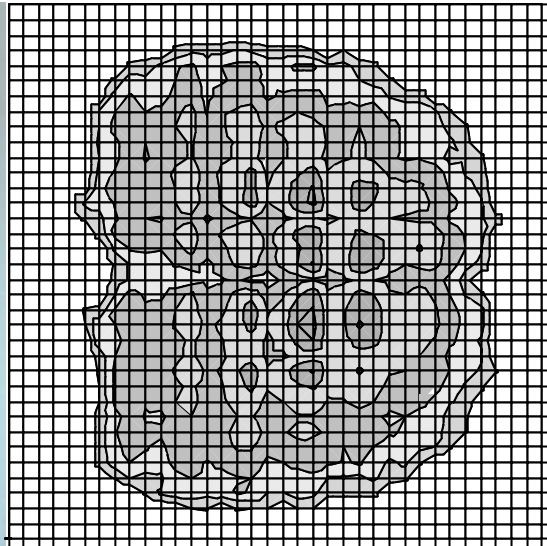
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SOFTFORM PREMIER VISCO



Pressure Map (10mmHg Isobars)

The Softform Premier Visco comprises a U-channel of high resilience combustion modified foam, with an inlaid profiled section comprising squares that compress individually. Beneath the profiled section is a layer of visco-elastic foam. No turning is required, only rotation, and top and bottom are clearly indicated. Cover access is via a zip on all 4 sides, with a protective flap to prevent ingress.

Peak Interface Pressure (pelvis)	73 +/-3 mmHg
Peak Interface pressure (heels)	78 +/-11 mmHg
Heat transfer rate	22.8 +/-0.2 Wm ⁻²
Vapour transfer rate	463 +/- 2 gm ⁻² day ⁻¹
Longevity (% reduction Quince after 10 ⁵ cycles)	8 %
Fire retardancy*	BS 6807:1996 Source 0, 1 and 5
Turning	Rotate only
Supplier:	
MSS	
Nantgarw Business Park	
Cardiff CF15 7QU	
*Information provided by manufacturer	

Evaluation

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