

# AeroSpacer Range



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Improving outcomes in the patient environment

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# AeroSpacer Cushion Range

A new clinically effective and cost effective alternative to foam cushions for patients who require a choice of comfort options. The AeroSpacer cushion also assists in the prevention and treatment of moisture lesions and non-complex pressure ulcers.<sup>1</sup>

The AeroSpacer cushion is a revolutionary new reactive therapeutic support cushion comprising 3D spacer textile. This is evidenced to provide effective pressure redistribution, help reduce temperature & humidity at the skin/surface interface and reduce shear strain, which together improve comfort levels when compared to traditional cushions.<sup>2, 3, 4, 5, 6</sup>

## The AeroSpacer cushion:

- Actively manages microclimate by reducing temperature & humidity at the skin/surface interface
- Provides effective pressure redistribution by effectively redistributing load through partial immersion and envelopment
- Deforms as a result of shear strain, reducing the internal tissue strain
- Provides a choice of four different seating positions, improving individual comfort levels
- Can be machine washed and tumble dried

## KEY FACT:

Wet skin has 4% the strength of dry skin.<sup>11</sup>

## Customised comfort and support

Recognising that human morphology and our perceptions of comfort are different, AeroSpacer uniquely provides four alternative seating options, enabling a favoured position to be identified and selected by the user or carer.

Due to the unique construction of the cushion and the properties of 3D spacer textile, instead of a 'one style fits all' approach, the AeroSpacer cushion will perform subtly differently depending on the orientation of the cushion, i.e. whether number 1, 2, 3 or 4 is positioned to the front. Therefore, users may perceive one orientation to feel more comfortable or supportive depending on their anatomy. Some users may also find one orientation helps to support asymmetric posture.

Additionally, the 3D spacer and cover design prevents the normal build up of temperature and humidity on loaded tissue, creating a less humid, more comfortable environment for sitting.

## KEY FACT:

Foam surfaces increase skin temperature because they have poor heat transfer properties.<sup>10</sup>

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## Fully launderable

Unlike foam cushions, the AeroSpacer cushion can be machine washed and tumble dried. This not only improves governance with improved infection prevention procedures, it also extends product life versus foam.

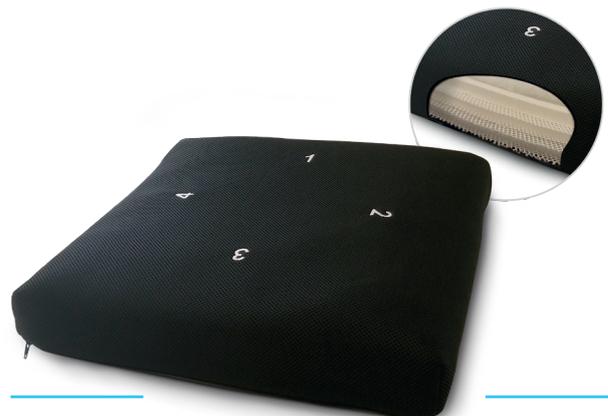
## Cover options

The AeroSpacer cushion is available with two cover options. The Infection Prevention cover incorporates Xtreme™ and is designed for use in the acute environment. This cover is polyurethane-coated, moisture vapour-permeable, multi-stretch and resistant to chemical cleaning.

To help the internal cushion 'breathe' this cover contains a TruFlow™ panel of spacer fabric around the edge, enabling increased air movement, moving warm, moist air away and bringing in cool, drier air.



The Climate Control cover is manufactured from a knitted, multi-stretch fabric. This fully air-permeable cover allows greater heat and moisture removal, providing optimum microclimate benefits. Both cover types can be laundered in addition to the internal cushion.



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# AeroSpacer

## Heel Off-loader

### Heel pressure ulcers

The heel is the most common site for reported facility-acquired pressure ulcers.<sup>7</sup> Heels are extremely vulnerable to pressure ulcers due to a small surface with a large, weight-bearing bony prominence, resulting in high pressure. There is little to no muscle, with a thin, sensitive, soft tissue padding so it is highly likely that pressure and shear will cause damage. In addition to being debilitating and painful for the individual, they often take a longer period for closure and healing.<sup>7</sup>

In 2014, NICE guidelines placed emphasis on heel protection and stated carers should consider a strategy to off-load the heels.<sup>8</sup>

#### KEY FACT:

In a study of 450,000 patients, heel pressure ulcers accounted for 41% of all DTIs.<sup>9</sup>

### The limitations of boot-style heel off-loading devices

Existing heel protection devices are usually constructed from foam, polyurethane or PVC air-cells and off-load the heel by enclosing it in a boot to lift it from the surface. Although usually effective at off-loading they often create a warm, 'sweaty' environment which together with loose fitting may be uncomfortable and contribute to non-concordance with use.

Excessive moisture on skin weakens collagen and softens the stratum corneum which leads to maceration, increasing the risk of skin trauma from

pressure and shear. For patients with oedematous legs, the warm environment often results in the heels 'sticking' to the heel device, further exacerbating skin damage. This means that boot heel devices may only be suitable for single patient use.

Heel devices may also be removed during sleep by restless and agitated patients, or by patients with dementia, resulting in heels being unprotected. Additionally, mobilisation may be compromised when the heel boot is in place.

### The limitations of pillows

Because of the drawbacks with heel boots carers often revert to placing pillows underneath the calves to create off-loading. The potential for problems with pillows, dependent upon construction, is if they 'compress' under load and fail to maintain heels in the off-loading position over time. They can also generate warmth and are sometimes 'kicked' out of position by confused patients.

### Introducing the AeroSpacer alternative

The AeroSpacer heel off-loader is a simple alternative that eliminates the many drawbacks of existing heel off-loading devices.

Comprising three layers of 3D spacer material, the AeroSpacer heel off-loader offers many benefits thanks to its innovative material.

- Does not cause sweating; 3D spacer textile has been demonstrated to effectively manage microclimate<sup>4</sup>
- Provides enhanced pressure redistribution and reduces shear stress<sup>4</sup>
- Improves comfort and increases concordance with use
- Does not inhibit mobilisation

- Improves governance with infection prevention and extends product life as it can be laundered between patients
- Encased in a welded Xtreme™ moisture vapour permeable, waterproof cover with a non-slip base to ensure it stays in place throughout the night
- Can be wiped clean or laundry disinfected and tumble dried

## Enhanced pressure redistribution

In addition to off-loading both heels, the design increases the loaded surface area in comparison to pillows and other heel off-loading devices, therefore providing greater pressure redistribution, support for the calf and improved comfort.

All the 3D spacer textile layers inside the AeroSpacer heel off-loader move in the same direction, forming a natural wedge shape when loaded by the calf. This keeps the heel elevated without discomfort on the lower leg. When the load is removed, the 3D spacer layers return to their original shape, providing consistent performance in comparison to a pillow that will lose shape over time.

## Shear reduction

The heel off-loader has been specifically designed to absorb shear strain and adapt in shape during use. This means it can also be used as a positioning aid to aid patients who may need support on one side.

## Improved microclimate and comfort

The textiles in the AeroSpacer heel off-loader comprise an open, breathable structure, removing heat and humidity at the skin/surface interface. In comparison to other heel devices, this will create a cooler, more comfortable environment and may increase concordance with use. The design eliminates the need for a bulky heel boot.

## Improved infection prevention and extended product life

The AeroSpacer heel off-loader may be wiped clean or machine washed and tumble dried. This not only improves infection prevention, but also means the AeroSpacer heel off-loader can be used multiple times with different patients, delivering real value for money over an expected five-year life.



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# AeroSpacer Surface Range

## AeroSpacer Mattress Replacement

The AeroSpacer MR comprises a top mattress containing layers of 3D spacer textiles, encased in a wipe-clean, detachable cover. This top spacer layer is zip fitted to a separate base comprising high specification polyurethane foam encased in a wipe-clean cover. The AeroSpacer mattress is engineered to provide effective reactive pressure redistribution, a reduction in shear stress, a reduction in heat and moisture at the patient-surface interface and improved comfort levels.

## AeroSpacer Overlay

The AeroSpacer Overlay comprises layers of 3D spacer textiles engineered to provide effective reactive pressure redistribution, a reduction in shear stress, a reduction in heat and moisture at the patient-surface interface and improved comfort levels. The overlay is designed to be placed on top of an existing mattress to provide extra protection.

## Who are Medstrom Healthcare?

AeroSpacer has been developed by Medstrom Healthcare in partnership with a leading textile consultant. AeroSpacer is the sum of more than 100 years' cumulative experience in the development of pressure area care devices. Medstrom supply specialist beds and mattresses to the NHS and the community and are the 2nd largest – and only independent - provider of bed management services to the NHS, managing around 20% of all acute beds and mattresses.

Medstrom were formed in 2006, and in 2010 undertook a management buy-out of Hill-Rom's bed management contracts. Medstrom initiated pressure ulcer prevalence and incidence monitoring and recently supported the first ever national prevalence survey together with the Welsh Wound Innovation Centre and NHS Wales.

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# Scientific Testing

## Heat and moisture reduction

Independent and published testing<sup>4</sup> demonstrates how passive body movement circulates air throughout the AeroSpacer textile, reducing temperature and humidity at the skin/surface interface<sup>2</sup>. This creates a cooler, less moist environment conducive to preventing moisture lesions and improving comfort levels.

The researchers also assessed how AeroSpacer and foam responded to non-uniform loading (simulating the effect of shear) and uniform loading (simulating the effect of pressure).

## Key findings

Whereas foam held the temperature at the perspiration threshold<sup>7</sup>, AeroSpacer reduced temperature to below the perspiration threshold,

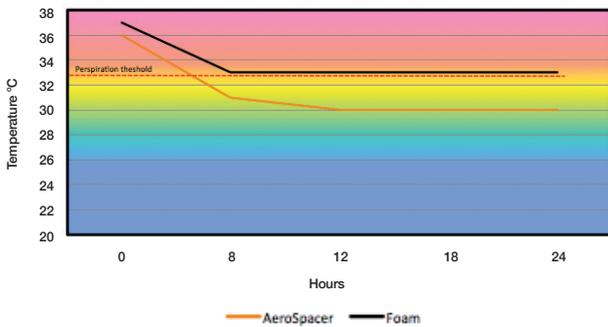


Fig 1 Results of temperature testing on materials, demonstrating the 'Lachenbruch surface sweat threshold'.<sup>10</sup>

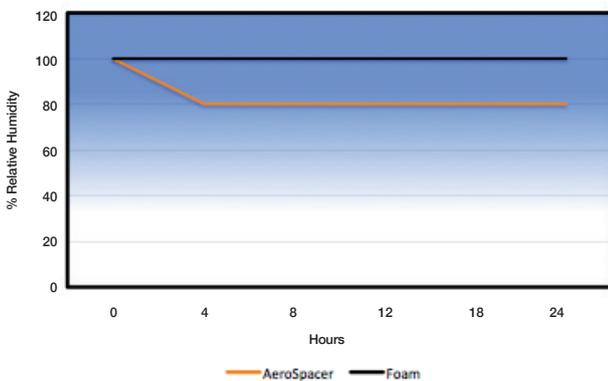


Fig 2 Results of relative humidity testing on AeroSpacer and foam.

demonstrating its ability to reduce temperature at the skin/surface interface. Fig 1.

Foam also held a relative humidity at 100%, whereas AeroSpacer showed a 20% reduction, demonstrating how AeroSpacer helps to prevent and heal moisture lesions. Fig 2.

## Absorption of shear strain, a reduction in tissue deformation and effective pressure redistribution

AeroSpacer demonstrated a greater displacement than foam under both uniform and non-uniform loading by up to 30%<sup>4</sup>, indicating a superior level of immersion and envelopment and an ability to reduce the effect of shear strain in the tissue over bony prominences. Figs 3 & 4.

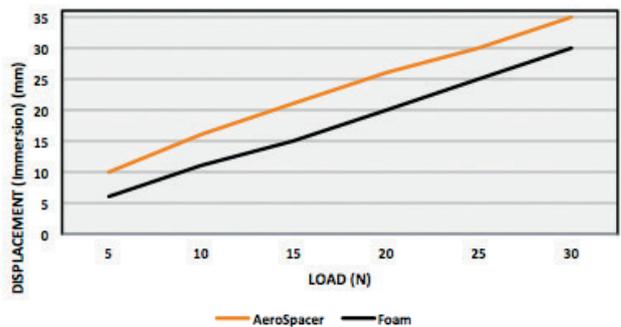


Fig 3 Results of load at a 30° incline representing shear absorption.

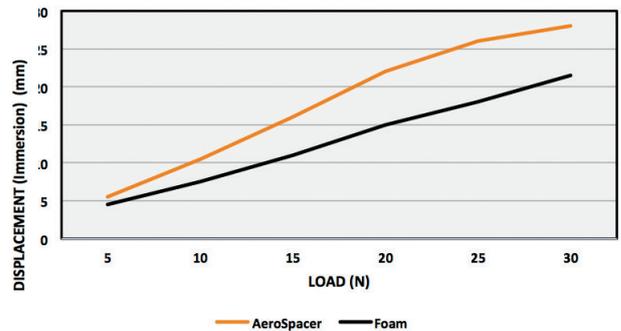


Fig 4 Results of vertical load testing representing immersion.

## Technical Specification: Cushion

Depth:	45cm (17¾")
Width:	45cm (17¾")
Height:	7.2cm (2¾")
Weight:	1.1kg (2.4lbs)
Max patient weight:	127kg (20st). Suitable for use on chairs with a safe working load which exceeds this weight and only where the patient is fully supported by the cushion and chair
Warranty:	A one-year performance warranty applies to the AeroSpacer cushion and cover
Expected life:	5 years

## Technical Specification: Heel Off-loader

Depth:	30cm (12")
Width:	65cm (25½")
Height:	7.5cm (3")
Weight:	0.65kg (1.4lbs)
Max patient weight:	127kg (20st) Suitable for use on mattresses when either flat or profiling
Warranty:	A one-year performance warranty applies to the AeroSpacer Heel Off-Loader and cover
Expected life:	5 years

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