



PRESSURE INJURY PREVENTION

Arjo Support Surface Covers

How cover fabric impacts the clinical performance and infection control properties of a support surface



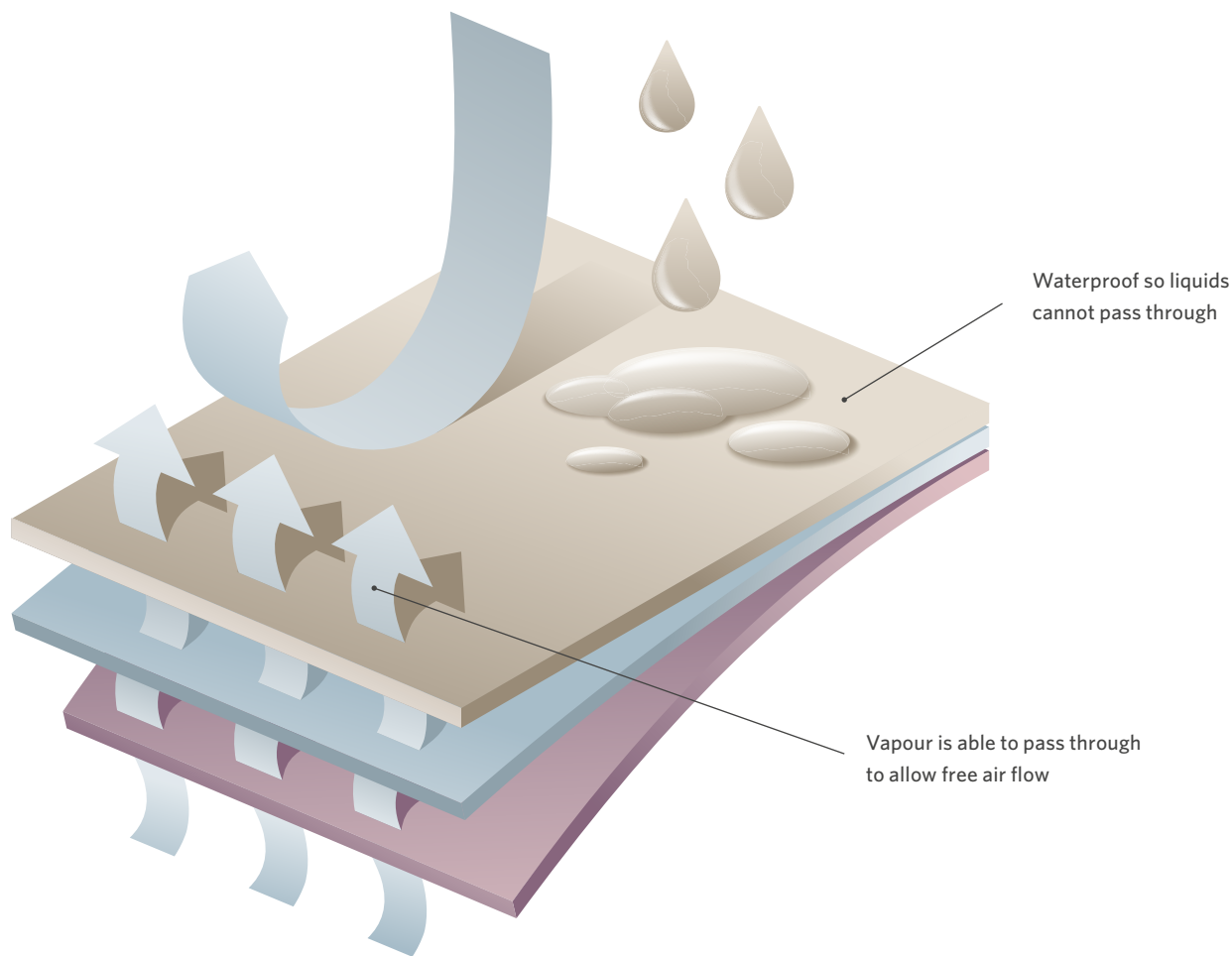
Selecting the right cover for your support surface

There are many different cover options available for support surfaces, but not all offer the same benefits to support pressure injury prevention and infection control. Indeed the type of fabric that is used to make medical mattress covers plays a large part in the clinical benefits the surface is able to provide.

Performance indicators of mattress cover fabrics include:

- Moisture Vapour Transfer Rate (MVTR)
- Stretch qualities of the fabric
- Infection Prevention considerations

Why are all of these important?
Why should you look for these qualities in a mattress cover?



Moisture Vapour Transfer Rate (MVTR)

This centres around the **microclimate** considerations of the surface. Microclimate as defined by NPIAP is: **The temperature and humidity in a specified location. For purposes of support surfaces, microclimate refers to temperature and humidity at the support surface/body interface.**¹

As well understood, moisture and heat can be factors in the development of pressure injuries, so taking measures to try and control these parameters and maintain a healthy microclimate at the support surface/body interface is important. Arjo support surfaces are constructed with a polyurethane (PU) coated fabric, which means that they are waterproof, but also vapour permeable. This allows for the inner mattress to be protected from fluid contaminants yet remain 'breathable'.

Skin needs to breathe!

Sweating, which can increase due to a patient's condition or the medication they are taking, causes moisture at key sites on the body prone to pressure injury development. Where there is increased moisture there is a higher risk of skin maceration and ultimately skin breakdown. Once this occurs there is an increased risk the patient will develop a pressure injury. That is why incontinence also increases the risk of developing

pressure injuries. Factors that influence the temperature and humidity between the body and the support surface, like the breathability of the fabric they are lying on, are very important considerations to have in mind when selecting a cover type.



The MVTR is an indication of how breathable a fabric will be once the patient is lying on it. The MVTR of a fabric indicates its permeability for vapour barriers, or the passage of water vapour through it, and is shown as grams per square metre per day, or g/m²/day. The higher the MVTR, the higher the amount of water vapour the fabric is able to release in a 24 hour period.

Of course there are many other tests that assess the overall microclimate performance of a support surface but looking at the declared MVTR from a fabric manufacturer is a good place to start.

Arjo covers with validated MVTR performance

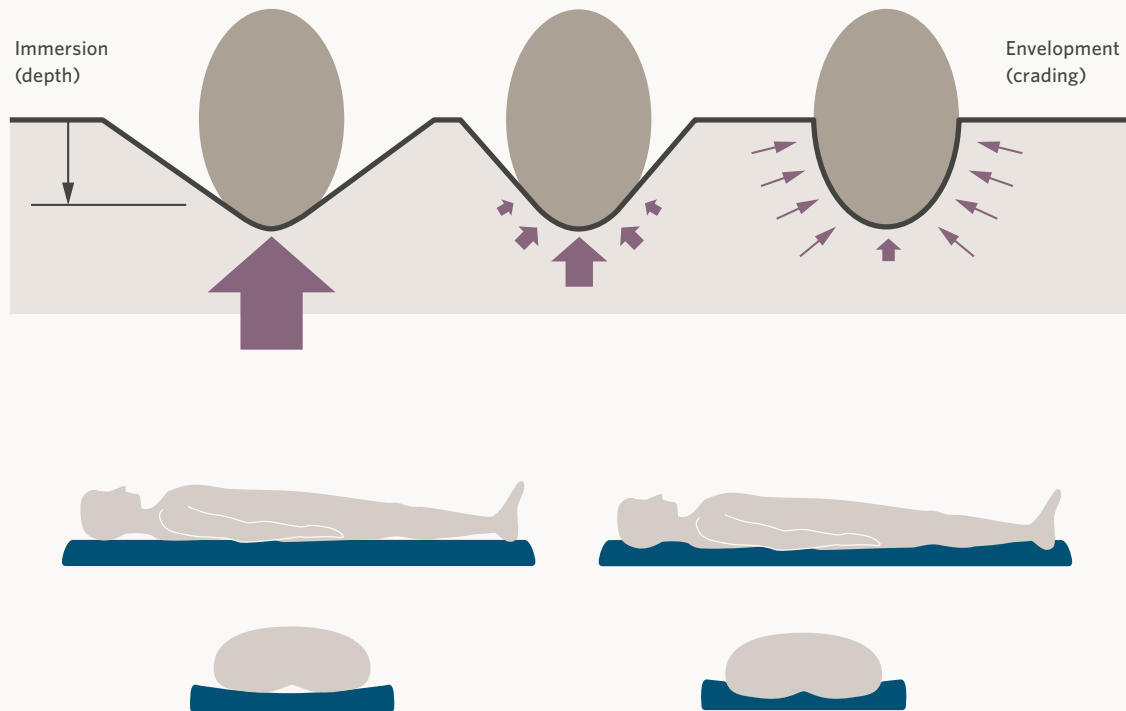
Reliant covers



Premium covers



Immersion and envelopment



The cover fabric should offer good stretch performance to enable immersion and envelopment, which help to reduce pressure between the skin and the support surface by distributing the pressure across a wider surface area.

Stretch

What do we mean by stretch performance? If you lie on a support surface – are you able to sink into it? Does the fabric offer enough 'stretch' for this to happen? How will the patient experience the benefit from the technology inside the mattress, be it foam or air cells, when there is a layer of fabric between them?

The stretch the fabric offers is all about enabling the **immersion and envelopment** the patient will experience once they are lying on the mattress. NPIAP defines this as:

IMMERSION

Penetration (sinking) into a support surface, measured by depth¹

ENVELOPMENT

The ability of a support surface to conform, so to fit or mould around irregularities in the body¹

These elements are important for comfort, but also from a clinical perspective. How well the patient's body immerses into

the mattress is key for good redistribution of pressure. In terms of pressure injury prevention, the more a surface is able to distribute the load over the contact areas of the body, the less pressure is applied to any one specific area, thus helping to minimise the risk of pressure injury development.

Cover fabrics should offer stretch properties to aid in good levels of immersion and envelopment. Some fabrics may offer 2 way stretch, 4 way stretch, or no stretch properties at all. The Arjo range of PU coated cover fabrics are engineered to offer 4 way stretch, which enables the best immersion and envelopment capabilities.

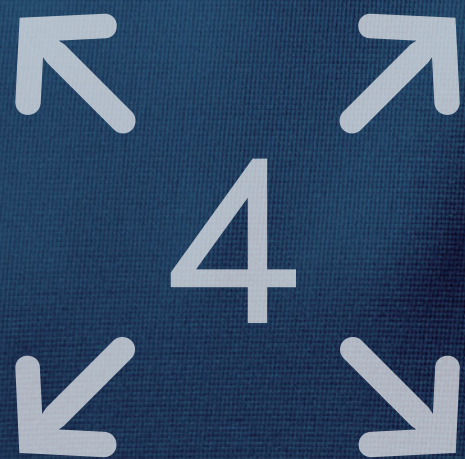
Arjo support surface covers offering good stretch performance and 4 way stretch:

Reliant covers



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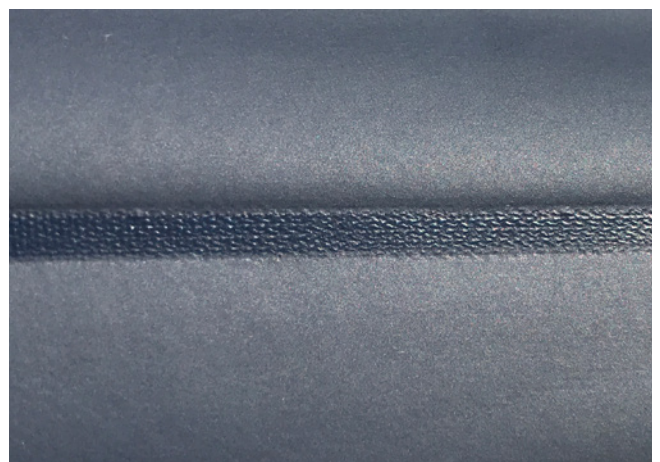
FOUR WAY STRETCH



Infection Control

In healthcare settings it is paramount to ensure a high level of infection control. For this reason, care facilities have robust policies for regular cleaning and disinfecting of the environment, including all the equipment that is being used.

This means that the cover fabric of a support surface has to go through a lot of cleaning! Anything that can be done to the design and construction of the mattress and cover that prevents it from being contaminated in any way is helpful to combat the spread of bacteria and viruses. All mattress covers should use a fabric that can be welded. The welding action bonds the cover fabric together, creating a tight seal that prevents anything seeping into the mattress core. If the cover seams are sewn together with thread, this creates small holes that may allow contaminants to seep through.



Welded seams

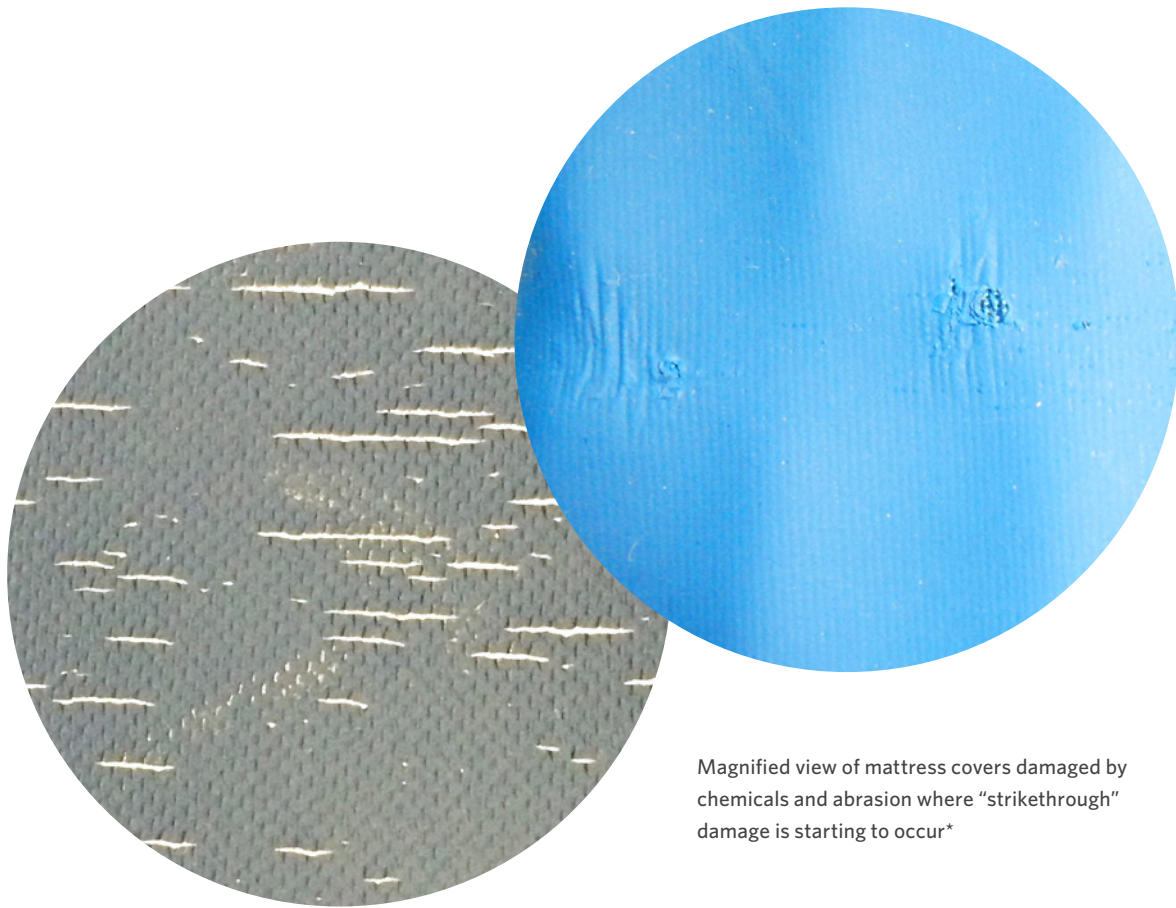
Arjo support surface covers with welded seams:

Reliant covers



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Magnified view of mattress covers damaged by chemicals and abrasion where "strikerthrough" damage is starting to occur*

Even when mattress covers have welded seams, their performance can sometimes be compromised due to damage from cleaning. Many different chemicals with varying strengths are used in cleaning solutions, which are not always rinsed away thoroughly after the cleaning process, and sometimes the covers are not allowed to dry off completely before use. These are known to be the main causes of cover 'strikerthrough', when tiny microscopic cracks appear in the mattress cover. Strikerthrough damage can be difficult to spot with the naked eye, but once they occur they may allow bodily fluids like sweat and urine to pass through the cover and contaminate the inner mattress.

Preventing strikerthrough from occurring can be a challenge with many of the vigorous cleaning regimes that are in place in healthcare facilities. Selecting a cover fabric cover that is breathable, but also has the strength to withstand abrasive chemical cleaning would provide a clear advantage in supporting infection control and the clinical performance of your support surface.

Arjo cover fabrics with welded seams:

Reliant covers



Premium covers



Arjo support surface covers designed to withstand harsh cleaning and disinfecting:

Premium covers



Conclusion

Not all mattress covers are the same. Judging a cover fabric by how it looks or feels to the touch is not enough to understand its clinical performance. The MVTR, stretch, and features supporting infection control should all be important considerations in the selection of a support surface cover.

Ask your Arjo representative for more information or visit www.arjo.com for more information.

* Photo credit © Trelleborg Engineered Coated Fabrics

References

1. NPIAP, Support Surface Standards Initiative Terms and Definitions, Revised: 12/27/2018; 11/19/2019 (https://cdn.ymaws.com/npiap.com/resource/resmgr/s3i/10-3_Terms_and_Defs_2019_We.pdf)

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At Arjo, we believe that empowering movement within healthcare environments is essential to quality care. Our products and solutions are designed to promote a safe and dignified experience through patient handling, medical beds, personal hygiene, disinfection, diagnostics, and the prevention of pressure injuries and venous thromboembolism. With over 6000 people worldwide and 60 years caring for patients and healthcare professionals, we are committed to driving healthier outcomes for people facing mobility challenges.

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