

# Optimal 5zon<sup>®</sup>

Clinical and performance information

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### Product information - Optimal 5zon®

06/11/13

Care of Sweden's mattresses are widely used in the prevention and the treatment of pressure ulcers. The Optimal 5zon® is a 14 cm full replacement mattress and consists of two quality HR foam layers of high density foam. The high quality of the foam means that we can cater for example for large carrying capacities, long life and excellent comfort.

Given the fact that 80% of pressure ulcers are in category 1 or 2 and that 95% of them can be treated, the Optimal 5zon® is an excellent choice.

Optimal 5zon® is especially developed to efficiently

### Pressure redistributing foam mattress

- Cost effective
- High density HR foam
- DuoCore® – patented<sup>(1)</sup> sit function
- Designed to minimize shear
- Maintenance-free
- Requires no adjustments

The Optimal 5zon® is ideal for all healthcare environments. It is a soft, flexible replacement mattress and is used for prevention and as an aid in the treatment of pressure ulcers up to and including category 2<sup>(2)</sup>, and also in pain therapy.

The Optimal 5zon® has excellent pressure redistribution properties<sup>(3)</sup> and is also equipped with the unique DuoCore® sit function. It is designed to provide support when seated, while also offering good comfort in the lying position.

(1) Patent no. 008522741.

(2) European Pressure Ulcer Advisory Panel, Quick reference guide 2009.

(3) Examination of the shear force and the pressure relief capability, Berlincert 2009.

(4) ISO 16603 "resistance of penetration by blood and body fluids", ISO 16604 "resistance of penetration by blood-borne pathogens", EN 14126, SS 876 00 19 "Health care textiles – Bacteria penetration – Wet".

(5) SS-EN ISO 15496:2004, DIN 53.122.

(6) Report vapor permeability, SP 2007.

redistribute pressure, reduce friction and shear force and to aid in the reduction/transfer of moisture. The functionality of the Optimal 5zon® is well documented through external and internal testing and through user testimonials. Optimal 5zon® is CE marked in accordance with MDD 93/42/EEC (Medical Devices Directive).

The Optimal 5zon® is easy to use and to handle. On a scale of 1-5, healthcare nursing staff have given this mattress a score of 4.44 according to expectations and a score of 4.04 for comfort achievement<sup>(2)</sup>.



The mattress is supplied with a stretchable hygiene outer cover which conforms to relevant standards for hygiene<sup>(4)</sup>, quality and safety. All covers are manufactured from modern, recyclable materials and are vapour permeable<sup>(5)</sup>, which reduce the risk of skin maceration.



### 1. Pressure redistribution

Examination of the pressure relief capability and the shear force (Berlin Cert, 02/09/09).

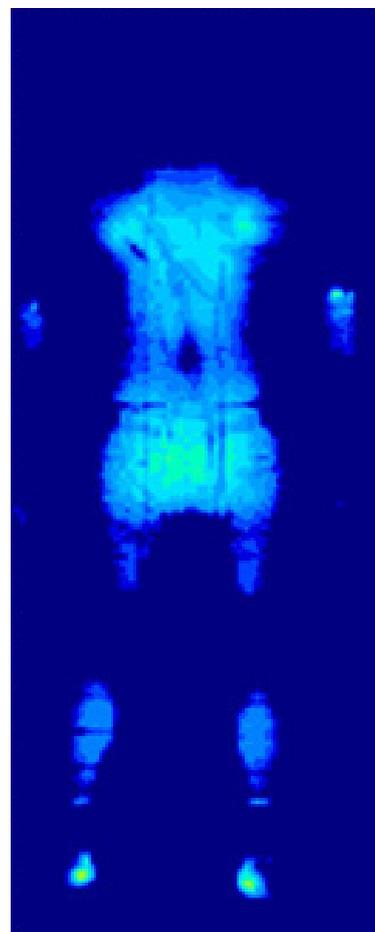
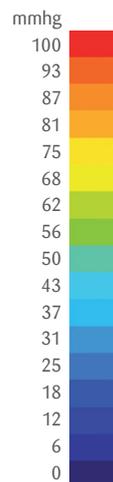


Optimal 5zon<sup>®</sup> and Optimal 5zon<sup>®</sup> BM have received the highest rating for “High Pressure Relief” in tests carried out by Berlin Cert and have been given an incredible test rating which is 32% better than the reference mattress used for a user weight of 80 kg. Even when the user weight is increased to 130 kg, the average contact pressure remains below 30mmHg.

#### Pressure Area Index (PAI)

Contact pressure is below clinical relevant thresholds.

Pressure	Patient weight of 80 kg	Patient weight of 130 kg
Below 30 mmHg	100 %	96 %
Below 20 mmHg	96 %	62 %
Below 10 mmHg	51 %	31 %



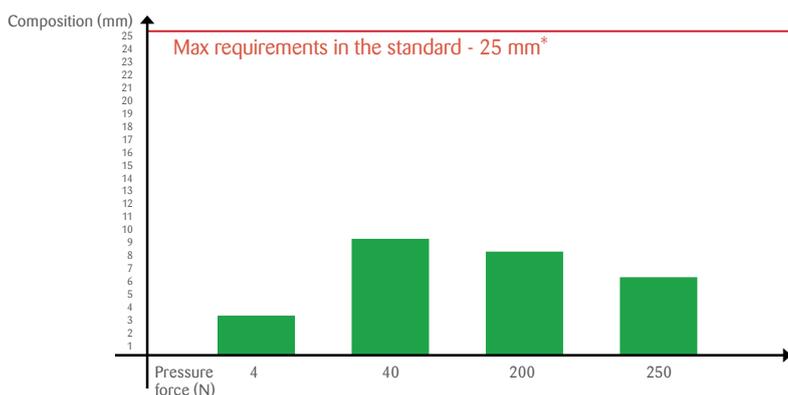
**PAI (Pressure area index)** is a way to evaluate static products. Measuring the interface pressure (IP) across the surface, below certain thresholds. These thresholds can be selected upon clinical relevances, arterial, capillary and venous pressure, 30, 20 and 10 mmHg.  
 Ex: A PAI of 100 % below 30 mmHg means that the whole body is experienced pressure reduction below the 30 mmHg threshold. The higher the PAI the better the pressure reduction provided.

Example of pressure mapping (Xsensor) Optimal 5zon with Evac cover. Male, 90 kg, 178 cm, average pressure 23.14 mmHg. (Describes the characteristics of the device, it cannot directly predict clinical outcome.)

### 2. Performance over time and durability

Optimal 5zon<sup>®</sup> is produced with high quality materials and perform well over a long period of time, even in very demanding environments.

Determination of healthcare mattresses sustainability, SS 86 00 11 (SP, 08/08/02) is a well known standard and has been used for mattresses in the healthcare sector in Sweden for over 20 years. Approved results meets the highest standards of sustainability and represent 5 years of use.



#### Table, fatigue effect

Pressure force	Composition in mm between 100 000 and 130 000 cycles
4 N	3
40 N	9
200 N	8
250 N	6

\*The requirement in the standard is a maximum 25 mm. It also checks for cracks in the cover during the test and this has not been demonstrated.

### 3. Microclimate

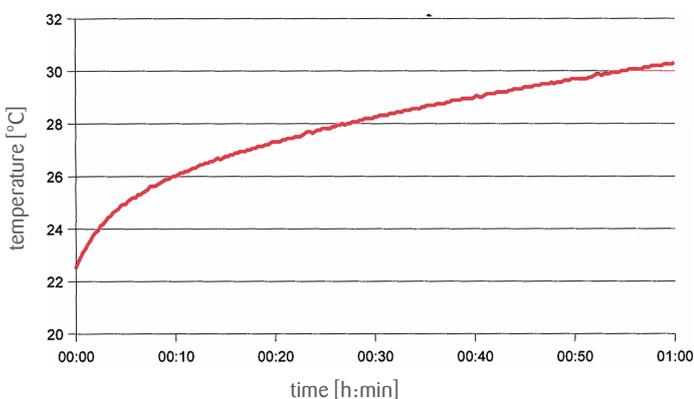
Moisture increases the risk of skin maceration and therefore microclimate is an increasingly important issue. For the users well-being it is important that the surroundings are dry and that the mattress is comfortable. Optimal 5zon® has received top marks from users regarding this, and below we present two tests that are relevant in this context.

#### Examination of the microclimatic characteristics (BerlinCert, 09/04/09)

Optimal 5zon® gets class D which is the next highest class (normal ability to transport moisture).



#### Temperature vs. time

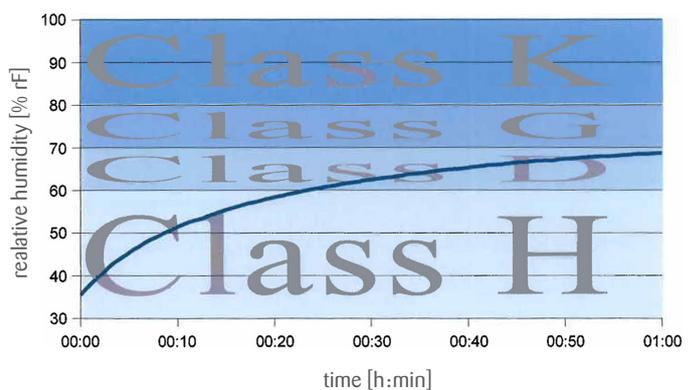


#### Determination of Water vapour and water (IFP Research AB , 1/18/07)

Penetration of water vapour determined in accordance with SS-EN 15496:2004. This is the ability to transport the vapour through the material (NB not liquid). The results showed 250 m<sup>2</sup>/Pa/W and 345 g/m<sup>2</sup>/24h .

Water resistance was determined according to SS-EN 20 811:1992. This test shows the material water resistance which is important for the material hygienic skills. The result showed 10 m (98 kPa).

#### Relative humidity vs. time



### 4. Weight limit testing

To ensure the function within its intended range, Optimal 5zon® has gone through Weight limit testing. This unique test give a good guide to how much the mattress can be loaded. The test also include fatigue testing (EN 1957, 30 000 cycles) and therefore provide information after a period of use.

#### Results

Optimal 5zon® is very well within the recommended interval (0-150 kg) in this test.



## 5. Hygiene

Hygiene is an important part for mattresses used in the healthcare sector and Optimal 5zon® show top results in this matter.

Covers can be washed in 95 °C and tumbled dried. If necessary the foam is easy to clean by wiping.

The covers are waterproof and vapour permeable and have a very well documented hygiene standard.

SS-EN ISO 15496:2004

ISO 16603 “resistance of penetration by blood and body fluids”

ISO 16604 “resistance of penetration by blood-borne pathogens”

EN 14126

SS 876 00 19 “Health care textiles – Bacteria penetration – Wet”

## 6. Flame retardancy

In all healthcare environments it is important to use products which meet the flame retardancy requirements, particularly for persons who may not be able to escape from a fire.

Optimal 5zon® is tested in accordance with EN 597-1 and EN

597-2 to meet the flame retardancy requirements. The aim is to minimize any fire hazard and the Optimal 5zon® is resistant to ignition by a cigarette or a small flame.

## 7. Customer evaluations

(Care of Sweden, 2013)

Care of Sweden’s customer survey of users and employees, show consistently good perceived comfort and function.

### Patient’s review (scale 1-5)

Comfort	4.04
Turn/Move on the mattress	4.04

### Staff review (scale 1-5)

To work with the patient	4.44
To clean/make up/handle the mattress	4.40
Fulfilled expectations	4.44

### A few words from our customers

*“A successful investment because we are now preventing pressure ulcers marvellously”*

*“Products are in the forefront when it comes to development”*

*“We replaced all of our mattresses with Optimal 5zon<sup>®</sup> and are very satisfied”*

*“Resulted in a more comfortable bed with less pain and a more peaceful sleep”*

*“Good patient comfort”*

*“A comfortable mattress that is easy to turn around and sleep in”*

### Recerence list

Pressure relief capability, BerlinCert 2009

Microclimate, BerlinCert 2009

Weight limit test, Recticel 2010

Suspension characteristics and durability, SP 2002

Ignitability of upholstered bed bases and mattresses according to EN-597-1a and EN-597-2, SP 2012/2013

Report vapour permability, SP 2007

Validation Documents, Internal material

Testimonials Care of Sweden



## Optimal 5zon<sup>®</sup> - the complete mattress for pressure ulcer prevention

- "All in one" replacement mattress
- DuoCore<sup>®</sup> sit function (patented)
- Specially developed to reduce shear forces
- Advanced zone & module system for efficient pressure equalization.

Visit [www.careofsweden.com](http://www.careofsweden.com) for more information



# Optimal 5zon<sup>®</sup>

Clinical and performance information

We are Care of Sweden. Since 1992 we have helped healthcare to improve the care given to patients who require just that little extra support, for example in the prevention and treatment of pressure ulcers. You will find us on care units all over the world.

Our products range from seating cushions for wheelchairs to advanced air mattress systems. Most of our products are manufactured at our facility in Sweden, where everything is done according to the highest quality standards.

Many of our customers see us as part of the care team, where we work side by side, as no one should ever have to suffer from pressure ulcers.

Together, we can reduce unnecessary suffering while at the same time save financial resources within the healthcare system.

We call our mission

**Supporting Life**



care of sweden  
Supporting Life

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