Care Mattresses

Mattresses	Target Group	Antidecubitus prevention	Incontinence resistance	Breathability	Inhibition of cross-contamination	Disinfection	Fire resistance
European Continent (standard size : 1m98 m x 88 cm x 12 cm)							
Home Care	Home care	- -	-		- -	-	
Comfort Care	Elderly homes	++	+	++	-	+	
Comfort Care Delta	Elderly homes Hospital	++	++	++	++	++	
Urtica	Hospital, Elderly homes	+	+	+	-	+	BS5852, part2, Crib 5
Urtica Delta	Hospital	+	++	+	++	++	BS5852, part2, Crib 5
Bio-MAX	Hospital, Elderly homes	++	++	++	+++	++	BS5852, part2, Crib 5
Kubuflex	Elderly homes	++	+	+	+	+	
UK (standard size : 1m93 x 89 cm x 15 cm)							
Prima	Hospital, Elderly homes	++	+	+	+	+	BS7177:1996 Medium Hazard
Kubuflex	Elderly homes	++	+	+	+	+	
Linknurse	Hospital, Elderly homes	+	+	+	+	+	BS7177:1996 Medium Hazard

Decubitus prevention

The risk of pressure sores reduces where pressure distribution is improved.
Various parameters are studied: peak pressure maxima, average interface pressure, % contact area.
An antidecubitus factor is calculated using the following formula:

AD factor = (10 S1 + S2 –10 S3)/S with contact surfaces

S1 with interface pressures between 3.7 and 18 mmHg
S2 with interface pressures between 18 and 37 mmHg
S3 with interface pressures over 37 mmHg
S the total contact surface

Where 37 mmHg is the internal venous pressure, long term pressures above this value can cause a reduction in blood flow, increasing the risk of tissue damage or pressure sore formation. So, the higher the S3 or AD reading, the bigger the risk for the development of pressure sores.

	AD	S3 (cm²)	
++	>5	<300	very good pressure distribution and decubitus prevention
+	4-5	300-400	
-	3-4	400-550	
--	<3	>500	minor pressure distribution and decubitus prevention

Clinical evidence for all mattresses was obtained during use over the last 10 years.

Waterproof / Incontinence resistance

The use of a non-porous polymer coated fabric instead of a textile fabric protects the mattress foam core from immersing fluids and micro-organisms. PVC or PU coated fabrics are suitable. PU coated covers, however, demonstrate a better elasticity and antiwrinkling effect.
Waterproofness is expressed as the resistance of the cover to the pressure of a water column. All selected PU covers resist more than 2000 mm water column.

Breathability

Human skin (with a surface approximately 1.6-2 m^2) produces between 500-5000 g water/m^2.day, dependent on environmental and individual factors. High humidity causes weakening of the skin, reducing the resistance of the skin to pressure and shear forces, and therefore increasing the decubitus risk. The water vapour permeability of the polymer coated fabric determines the evaporation of the sweat. Our PU coated fabrics are tested according the inverted cup method and the american standard ASTM-E96-E. They are selected based on high permeability values.

+ : good water vapour permeability (> 500 g/m^2/day)
++: superior water vapour permeability (> 1500 g/m^2/day)

Inhibition of cross-contamination / cross-infection

Our PU covers are proved to be bacteria impermeable. In addition, an antimicrobial is added in the PU coating, inhibiting the growth of adhered bacteria or fungi. However, standard PU covers are sewn and closed with a standard fabric zip. The sewing process causes little needle holes, through which bacteria can penetrate. Hospital bacteria show often antibiotics resistance and minor contact can infect the patient. As such, the mattress can be a carrier for bacteria and can cause cross-infection when new patients use the bed.
Using a new technology, namely high frequency welding, this problem is eliminated. The cover is not anymore sewn, but welded. Cover holes do not occur. Foam4Care has a special patented design where also the zip is welded and totally closed by glueing a waterproof plastic over it. This cover is called ‘Delta’.

- - : textile cover
- : sewn PU cover
+ : welded cover with normal zip
++ : welded cover with patented zip design

Desinfection

- : Mattresses in a textile cover can not be properly disinfected
+ : Sewn PU covers can be easily surface disinfected
  Recommended disinfectantia are: alcohol, quaternary ammonium salts, aldehydes or hydrogenperoxide solutions
++ : Welded PU covers can be either surface disinfected or brought into a chemothermal washstreet.
  Disinfection occurs at 65°C during 15 minutes, by spraying a detergent/disinfectant solution. As disinfectant hydrogenperoxide is recommended.

For Cookwash (95 °C) or steam sterilisation in a steam washstreet (VDV-systems) special covers are available. However, these covers are few breathable and less comfortable. Development to improve VDV appropriate fabrics are going on.

Fire resistance

Due to safety regulations, some institutions prefer to have fire resistance mattresses. Therefore flame retardants are added into the foam and textiles. There are contradictory opinions around Europe about the use of flame retardants and about the different flammability norms. In the UK, mattresses have to meet very severe fire tests, being the Crib 5 test.

Foam4Care developed a special foam grade, Safeguard ®, that combines fire retardancy with unique comfort properties. This foam grade is used as core material for the Urtica, the Prima & the Linknurse mattress.