

# ANTIDECUBITUS SYSTEMS

## MATTRESSES CUSHIONS

### ANTIDECUBITUS: WHY?

**Decubitus** (from Latin *decumbere*): position of a person lying horizontally in contact with the supporting surface.

**Decubitus sore (bedsore)** (from Latin *decubitus ulcer*) : skin and subcutaneous tissue ulcer which forms on the bone protrusions due to the prolonged pressure of these parts on mattresses, wheelchairs, cushions.

To understand this symptom, we need to remember when waking up after a warm night, our face and body are marked by the folds of the cushion and sheets; for us it is only a temporary morning trouble.

Decubitus is a serious problem for people who must stay in bed or in a wheelchair for a long time because of a long stay in hospital or due to other problems.

Their immobility may cause acute physical pains, as well as skin ulcers caused by the lack of blood circulation, then by the insufficient oxygenation of tissues on some parts of the body, owing to an excessive and constant pressure. The pressures which are considered acceptable at medical level for people who must be immobilised for a long time is about 20 – 32 mm Hg, value equivalent to the average pressure of the blood in the capillary vessels.

Moreover, the continuous contact between the patient and the supporting surface eliminates the air circulation near the skin thus causing an increase in perspiration and temperature. Under these conditions the skin tends to macerate, enabling the formation of bedsores.

**The antidecubitus action** aims to relieve the pains caused by these pathologies, providing the patient with a better comfort and preventing the formation of subcutaneous ulcers. Therefore mattresses, cushions and all the accessories of antidecubitus equipment are mainly intended to:

- assure the normal blood circulation in the regions of interest;
- obtain the maximum air circulation in the contact regions, considerably reducing perspiration;
- create a skin support which stimulates the recovery and gives an immediate relief in an acute situation.

A person lying on a very rigid surface is only sustained by the bone protrusions that are in contact with the surface (nape, scapula, sacrum, elbow, heel). The skin connected with these regions is subject to an high pressure which prevents the normal subcutaneous circulation.

Antidecubitus mattresses and cushions distribute the pressure on all the parts of the body increasing the contact surface to reduce the local pressure in every point; or they alternate the support function on different parts of the body so that all the skin is not stressed cyclically.

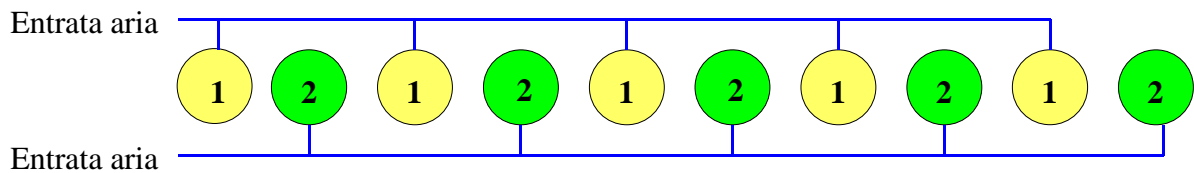
The basic principles are:

**FLOATING** system: chamber with static air at a pressure proportional to the weight. Thanks to the special design used, with the body movement the air passes from a chamber to the other stabilizing the pressure and producing a skin massage, suitable for people staying in bed for a long time but relatively movable.

**ALTERNATE** cycle: the mattress is composed of two separate and intersecting air chambers which are alternatively pumped.

With this system, the body is always sustained and 50% of the contact regions are cyclically free from pressure so that in the corresponding subcutaneous capillary vessels the blood circulation may occur without problems. This system is suitable for patients staying in bed for a long time, with no movement, and having a maximum weight of about 80 Kg.

## ALTERNATE DIAGRAM

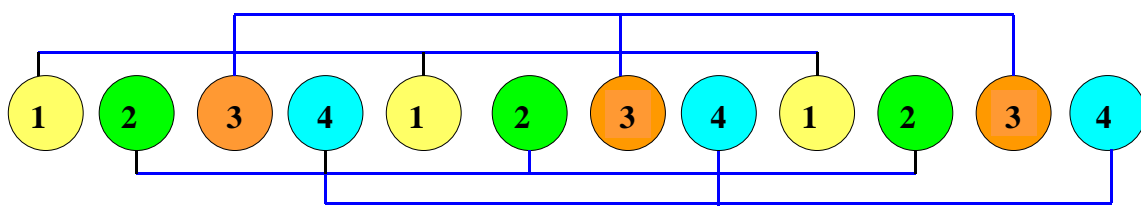


The cycle consists of four steps: Preparation, inflation of all the elements;  
 1 odd element deflation  
 2 odd element inflation  
 3 even element deflation  
 4 even element inflation  
 The cycle re-starts.

SEQUENTIAL cycle: the mattress is composed of four separate and intersecting air chambers which are inflated and deflated sequentially by a suitable pump. With the sequential cycle one chamber is deflated, while the 3 chambers inflated sustain the body, thus obtaining an increase of 50% of the supporting surface compared to the alternate cycle. This system can be used for a patient of 120 Kg or for the equivalent weight the supporting pressure can be reduced by 33% so reaching the optimum pressure of 20 mm Hg which allows the blood circulation not to be obstructed in the contact positions.

In order to meet the requirements of the various "ANTIDECUBITUS" techniques, Cometas can rely on a long experience in electromedical design, producing ventilated and air mattresses and cushions, in conformity with the medical European Directive 93/42/EEC. These facilities have already demonstrated with their use to be a great help and relief to the patient as well as to people assisting him.

## SEQUENCE DIAGRAM



Preparation, inflation of all the elements.  
 A Element deflation 1  
   Element inflation 1  
 B Element deflation 2  
   Element inflation 2  
 C Element deflation 3  
   Element inflation 3  
 D Element deflation 4  
   Element inflation 4  
 Cycle re-start

**ALTERNATING AIR PUMP  
WITH PRESSURE REGULATOR**



Designed to feed antidecubitus bubble mattresses or mattresses with interchangeable elements and air cushions.

**ABS robust body with handle, power cable housing, belts for fastening to the bed, rubber supports for positioning on the floor**

**COM 1** Alternate with boost control

**COM 2** Alternate with pressure regulator

**COM 4** Sequential, with regulator and visual alarm for minimum pressure

**ANTIDECUBITUS BUBBLE MATTRESS  
alternating air exchange, made of medical PVC and Polyurethane**



**MAT 1 R** with end flaps

**MAT 1** without end flaps

**MAT 1R PU** with end flaps, Polyurethane

**ANTIDECUBITUS AIR MATTRESS  
ALTERNATE OR SEQUENTIAL SYSTEM  
MEDICAL PVC ELEMENTS**



**MAT 2** alternate system

**MAT 4** sequential system

Sheet in very fine medical PVC covering all the elements.

Sheet in water repellent and transpiring PU covering all the elements.

The sheet is fixed to the main sheet below by velcron.

**Pump for adjusting and inflating antidecubitus air mattresses  
by COMPRESSED AIR from CENTRALIZED system**

## **AIR CEN M Pump**



For ALTERNATE system:  
use model **AIR CEN M 2**

For SEQUENTIAL system:  
use model **AIR CEN M 4**

### **ANTIDECUBITUS AIR MATTRESSES ALTERNATE OR SEQUENTIAL CYCLE WITH CPR VALVE (fast deflation)**

#### **Alternate MAT 2 CPR**

two CPR valves for fast deflation.

Operated by COM 1 – COM 2 –

AIR CEN M 2 pumps.

#### **Sequential MAT 4 CPR**

four CPR valves for fast  
deflation.

Operated by COM 4 – AIR

CEN M 4 pumps.

MADE OF POLYURETHANE



### **ANTIDECUBITUS SILICONE HOLLOW FIBRE MATTRESSES**

**VARIOUS MODELS  
AVAILABLE**



The mattress is composed of a 100% cotton cover with zip, which wraps 14 cotton cylinders containing fibre (total weight kg 6,7). Every cylinder operates independently of the others and on a limited region, thus allowing the optimum performance of the fibre.

Must be used on top of the ordinary mattress. The interchangeable elements make the mattress maintenance easier and can be replaced when required.

*Application* : prevention of decubitus sores for medium weight patients.

*Dimensions*: cm 195 x 85 x 13

Antidecubitus mattresses Class 2  
**UNIBLOC MINI PRESSURE**  
Air operated - with and without CPR valve

ALTERNATE and Floating cycle

Mod. **MAT 2 UB**

Mod. **MAT 2 UB cpr**

SEQUENTIAL and Floating cycle

Mod. **MAT 4 UB**

Mod. **MAT 4 UB cpr**



Composed of 28 vertical elements wrapped in a composite polyurethane water repellent - transpiring cover. Dimensions: 185 x 85 x h23 cm

Antidecubitus pump  
**CIRRUS A**  
Alternate - Floating

- Electronic control of pressure, even for very low values.
- Stainless steel body with rear hook for fastening to the bed
- Visual and acoustic alarm for minimum pressure 14 mm/Hg
- Dimensions: 32 x 20 x h 27 cm

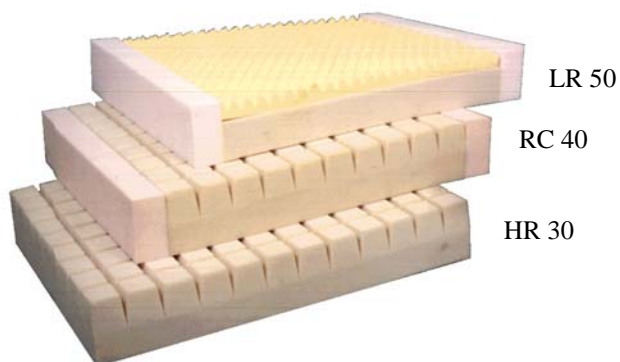
Suitable for use in combination with UNIBLOC MINI PRESSURE mattresses





# ANTIDECUBITUS VENTILATED MATTRESSES

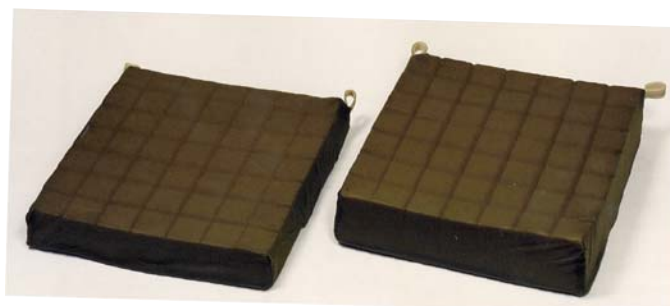
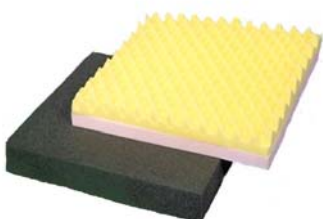
made of expanded material and visco-elastic foam



# ANTIDECUBITUS VENTILATED CUSHIONS



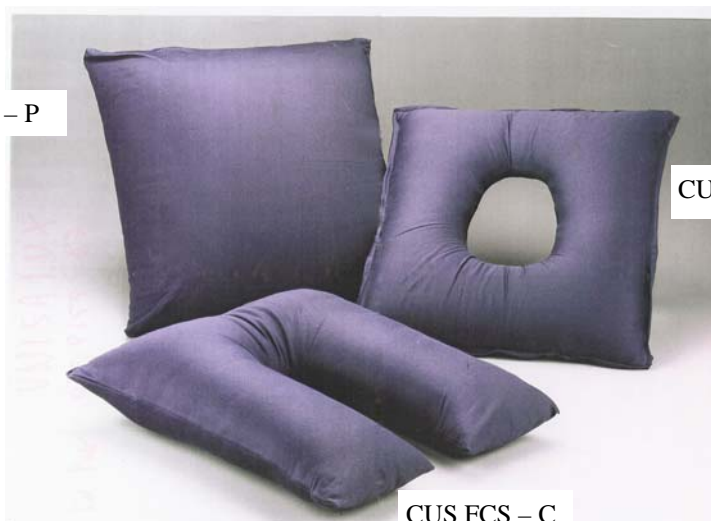
## Mod. CUS



# SILICONE HOLLOW FIBRE CUSHIONS

Nom. Code 03.33.03.003 EC Conformity – EN 12182 – 4,5,10,11,13

CUS FCS – P



CUS FCS – F

CUS FCS – C

# FLOATING BUBBLE Cushion

For decubitus sore prevention and therapy

Ex nomenclature 501 21 07 - Iso 03 33 03 015 EN 12182 clauses 4. 5. 10. 11. 13.  
Air bubble cushion with micro air exchange

Patent n.



- Physiological
- Comfortable
- Maximum distribution of contact surface to reduce the skin pressure



Mod. **CUS F**

The antidecubitus AIR BUBBLE cushion model CUS F is composed of 4 or more identical and overlapped inflatable elements, interconnected by a tube, which form a single air chamber suitable for pressure stabilization.

The square elements are made of PVC - PU film. Thanks to their welding pattern, the inflated elements form ovoidal air bubbles that are interconnected and arranged in intersecting rows. This system is aimed to provide:

1. Maximum adaptation to patient's body.
2. Smooth pressure on contact skin tissue.
3. High ventilation assured by the holes located between the inflatable elements and between the ovoidal air bubbles.
4. The cushion is inflated proportionally to the patient's weight so as the contact parts of the body are not in touch with the rigid surface of the chair or wheelchair. Therefore, the patient is in a floating condition on the cushion air bubbles. Pressure must be regularly controlled by applying the SIM manual pump to the inflation valve. SIM manual pump allows to inflate the cushion, and to discharge pressure by moving the sealing ring sideways.

The overlapped supporting elements never form solutions of continuity, so avoiding hard and irregular contact points which may affect the antidecubitus therapy, even in case of insufficient inflation.

Manual inflating pump and pressure-gauge mod. SIM (code 5000703) providing an accurate inflation as well as an easy deflation for a perfect calibration.

CUS F 7 code 5000701



CUS F 10 code 5000702

**NEW**

## INFLATABLE CUSHION AIR – WATER

Mod. **CUS A – A**

Made of ultrasonic welded Medical PVC.

Fitted with two openings: a large one for water, and a small one with safety valve for air.  
The inflating pump is supplied as standard.



### OPERATING MODE

**WITH WATER:** introduce the amount of water indicated below the figure through the large opening, using a funnel.

Add 20 cc of a liquid disinfectant solution (like amuchina).  
Properly plug both the openings.

**WITH AIR:** insert the pump in the small opening.

Inflate the cushion so as to separate its walls by 3 – 4 cm.

Properly plug both the openings.

When sitting, the patient must float on the cushion, without touching the supporting surface.

Mod. **CUS A – A P** : filled cushion  
operating dimensions 40 x 40 x 4  
code 5400101

Water amount 1. 1,4 (1.400 cc)



Mod. **CUS A – A F** : cushion with central hole  
operating dimensions 40 x 40 x 4  
code 5400102



Mod. **CUS A – A C** : cushion with cross pattern  
operating dimensions 40 x 40 x 4  
code 5400103