

Energy free comfort mattress

Our partner, a Hungarian SME has developed a new kind of mattress which is able to replace the conventional seat- and bed mattresses and revolutionizes comfort foam-manufacturing. The client is interested in finding license partners or investors. The ideal license partner would be polyurethane foam manufacturer.

Background information

During manufacturing seat- and bed mattresses the efforts to improve comfort-feeling take the aim to be able to set the hardness of the charge materials. It can be reached partially by:

- combining materials
- constructions which vary its hardness automatically (different springs)
- taking fluid materials into (water beds, air mattresses)

The main disadvantages of the systems mentioned above are the following:

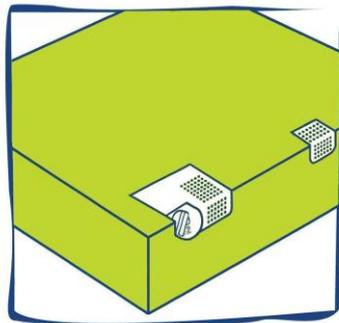
- The hardness varies only as the function of the load, there is no “real” adjusting (Epeda-spring, Bonell-spring).
 - The adjustability of the hardness is partial or circumstantial (for example: bracing of the wooden springs by binding).
 - The adjustability of the hardness is not ungraded.
 - High risk (for example: a double-waterbed contains 2-3 m³ water).
 - External energy source is needed, which decreases the ability and mobility of the mattress.
 - The adjustment of the hardness is accompanied with mechanical- or noise effects (running of the compressor by conventional air mattresses).
 - Furniture shells, rack constructions should have special design (for example: the water bed needs extra carrying capacity, the appropriate placement/concealment of the compressor at air mattresses).
 - The external energy source raises the price of the mattress (for example: heating up and keeping warm the water content of the water bed, price of the compressor at air mattresses), for this reason it becomes a premium category product property.
 - Failure of any system utilizing the external energy source leads on the total inefficiency of the furniture.
 - The external energy sources can be dangerous, such as electric current, although it is easily accessible and it is present at any application, but the touch-protection raise solicitude. Compressors are relative expensive, and are immovable. At the use of
- 

electric current, it should be separately set out the danger of fire (short circuit), which is a highlighted danger for furniture made of combustible/flammable materials.

- The heating device of the water beds has on one hand very high energy needs (setting the temperature of 2-3 m³ water), and on the other hand by overheating it can cause “artificial fever”. For these types of beds it is a typical problem to filter out the wave-effect and it is not solved to suffice the user needs per person.

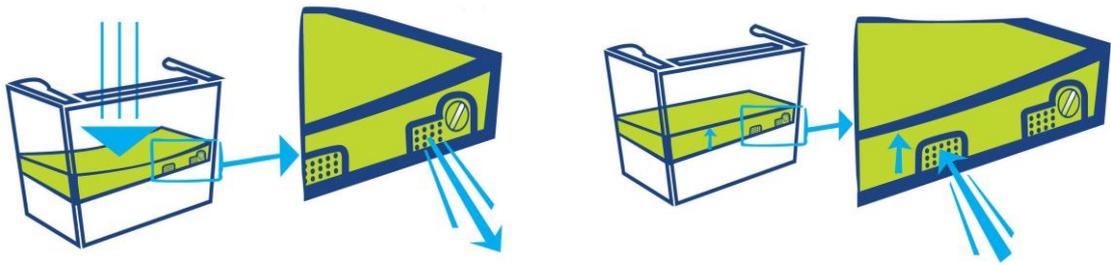
Innovation of the technology:

The EFC mattress is a product which is able to replace the conventional seat- and bed mattresses and revolutionizes comfort foam-manufacturing. The hardness of EFC mattress can be controlled by loading, the required pressure can be set with the terminal-valve (which is placed on the bottom of the mattress) at compression. At ending the loading the EFC mattress behaves similar to the conventional seat-mattresses, it assumes its original shape without external energy needs.



The carrying-capacity of the foam material which is hermetically closed into the textile can be divided between two components:

- the carrying capacity of the foam material (it works similar to other conventional products which are on the market, but in that case this is the only component which provides comfort)
- the air-cell, which surrounds the foam material is converted to a component also carrying the burden, for which pressure can be adjusted with a valve
- according to the adjustment of the valve, the burden of the mattress can be divided between the air-cell and the foam material
- the adjustment of the comfort sense is managed by adjusting the air-pressure



Main advantages:

In contrast with the deficiencies (mentioned above) of the conventional seat-mattresses the EFC mattress:

- does not need external energy source
- adjusting/setting the pressure (and through hardness) is solved by devices, which are built and hidden into the mattress without disturbing comfort
- using the resiliency of foam charge materials its refills the air-cell and makes possible the re-adjustment of the hardness (the refill does not need external energy resource)
- the pressure can be set, it sets back to the value adjusted before, the comfort-sense is reproducible
- no noise effect
- no need of mechanical intervention for adjustment
- personal comfort needs are feasible (for example, the bed-mattress can be divided and it the two parts can be adjusted to individual needs, in case of illness the comfort need can also be different)
- the damage of the drape of the furniture is less (the pitting of the furniture is off or elongates is time), the durability of the furniture progresses
- according to the principle of cost neutrality, the manufacturing is very economic, because the payups of the mattress are covered by the savings offered by the simplification of the structural build-up of the furniture and by the application of foams with less strength
- it is insensible to failures, because in case of failure, the furniture does not become unusable, only to adjustability of the comfort ends, and it becomes a conventional, soft comfort grade mattress or furniture.

Potential areas of use:

- Household seat- and bed furniture manufacturing
- Bedchambers of vehicles
- Beds for in-patient medical attendance

Stage of the development:

Prototype is developed.

Intellectual property status:

The technology is protected in Japan, Europe, Eurasia, China, India, South-Korea, Australia, Brasilia, USA and Canada.

Type of collaboration:

Our partner is interested in finding license partners or investors in the above countries except Europe and Russia. The ideal license partner would be polyurethane foam manufacturer. Investment would be needed for finishing the development of the production processes.

For further information please contact:

Dr. Peter Mogyorosi,
Director



LC Innoconsult International
Address: H-6723 Szeged, Felső Tisza-part 31-34.
Phone: +36-62/643-574, Fax: +36-62/643-574
E-mail: innovacio@lcinnconsult.com
Web: <http://www.lcinnconsult.com>