

Field of use  
Heating and cooling  
systems

Current state  
of technology  
Prototype under  
development

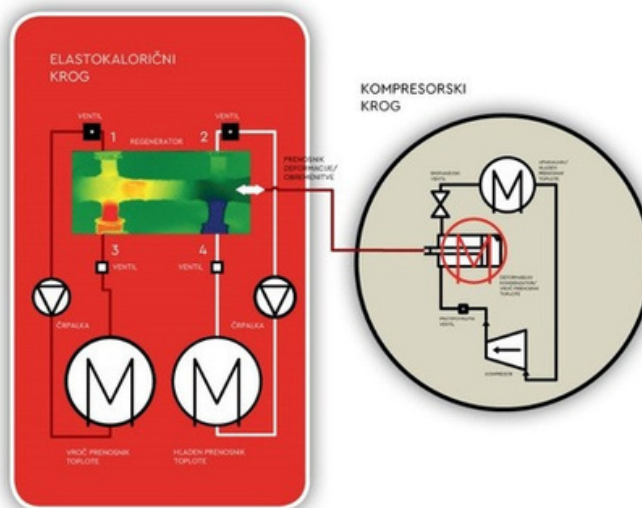
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## Background

Great majority of all cooling and heat-pumping systems are based on vapour-compression technology. The technology dates back to 1834, making it a dated and environmentally unfriendly technology with relatively low efficiency. There are alternatives which, however, for various reasons have not yet made a breakthrough in everyday use. One of the alternatives is elastocaloric cooling and heating, which has been recognized by the USA Department of Energy and European Commission as the most perspective technology of the future in this field.

## Description of the Invention

The invention presents a hybrid cooling and heating system. It is based on the idea of exploiting the pressure difference of the vapour-compression system for loading and unloading of elastocaloric material, which generates the elastocaloric effect.

## Main Advantages

Introduction of the hybrid system promises higher efficiency and consequently reduced consumption of energy and refrigerants which are not environmentally friendly. Furthermore, the hybrid system enables gradual introduction of the alternative "green" technology of the elastocaloric cooling and heating.