

RESEARCH, DEVELOPMENT AND TESTING NATIONAL INSTITUTE FOR ELECTRICAL ENGINEERING - ICMET CRAIOVA

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COOLING INSTALLATION FOR AUTOVEHICLES

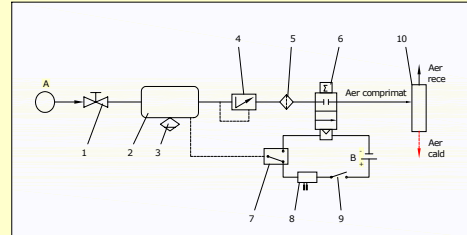
Letters patent : RO 119869 / 2005

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Description / Characteristics

- The installation of ecological type is composed by a module for air storage - purification, pneumatic rotational generator, automation module. The pneumatic rotational generator carries out the energetic separation of incident flow of compressed air ($p=3...7$ bar), in two currents: one cold and another hot. Depending on the application, the current of cold/hot air is purged in the atmosphere and the current of cold/hot air is conducted through the piping in the cabin of the vehicle carrying out the desired cooling/heating.



- It is possible to obtain cold gases ($-30^{\circ}\text{C} \dots +20^{\circ}\text{C}$) and hot gases ($+21^{\circ}\text{C} \dots +90^{\circ}\text{C}$) of variable flows, depending on the type and the energetic power of pneumatic generator.

- The automation module assures the cyclic operation of the installation, depending on the minimum or maximum temperatures imposed by the thermal comfort in the vehicle cabin.

- In comparison with the air-conditioning installations with refrigerating agents of freons type, the air-conditioning technology using only compressed air is ecological for the environment, the person's health and life.

Applicability field

Air-conditioning by cooling and heating of spaces of reduced volume as the cabin of buses, trucks, tramways etc. which are endowed or can be equipped with a source of compressed air.

The applicability can be extended to living, working and technological spaces.

Compressed air

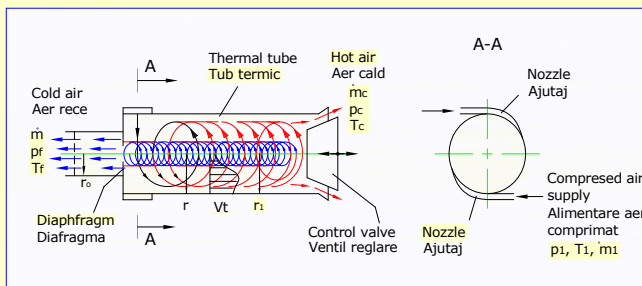


Fig.2 Functional model of the installation

Fig.3 The operation principle of the pneumatic rotational generator

Obtained decorations

- Functional model carried out within the national program INVENT 2005-2006
- Diploma and silver medal - EUREKA 2003, Brussels
- Diploma and gold medal - PROINVENT 2008, Cluj Napoca

