

MODULE FOR INCREASING THE EFFICIENCY OF VAPOUR COMPRESSION PLANTS AND ASSOCIATED OPTIMISATION METHOD

DESCRIPTION OF THE TECHNOLOGY

Members of the research group Thermal and Energy Systems Engineering (ISTENER) of the Universitat Jaume I have developed a module for optimising vapour compression plants (refrigeration or steam pump). With this innovation, the maximum temperature of the circuit will be monitored with great precision, thus enabling an optimum level of energy efficiency to be reached (maximising it) and the control of the cooling/heating capacity to be adjusted, without compromising the useful life of any of its elements.

Such a module may consist of a bypass that controls the rate of flow of fluid passing through an internal heat exchanger and then mixed with fluid that has not been subcooled/superheated. The flow rate through each pipe is regulated by valves controlled by external elements, based on the operation of the vapour compression system.

SECTORS FOR COMMERCIAL APPLICATION

The present industrial invention belongs to the field of heat and/or cold production by means of vapour compression plants.

TECHNICAL ADVANTAGES AND COMMERCIAL BENEFITS

- Advantages
 - Improved energy efficiency.
 - Optimised vapour compression plants.
 - Prolonged life span of components.
- Benefits
 - Reuse of residual energy (circular economy).
 - Savings in energy and maintenance costs.
 - Reduction in CO₂ emissions (carbon footprint).

STAGE OF DEVELOPMENT OF THE TECHNOLOGY

Validated at the experimental level in the laboratory under different working conditions and with different working fluids.

INDUSTRIAL AND INTELLECTUAL PROPERTY RIGHTS

This invention is protected by means of an application for a Spanish patent with reference number P202230825 and filing date 27/09/2022.

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COLLABORATION SOUGHT

Development and adaptation of the technology to particular applications through specific agreements and a subsequent licensing agreement with companies.

RELATED IMAGES



CONTACT DETAILS

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