Patent Search

Invention Title	PERFORMANCE ENHANCEMENT OF DOMESTIC AIR CONDITIONING SYSTEM USING MAGNETIC FIELD IN THE LIQUID LINE AND MAGNET LUBRICANT
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Abstract:

A domestic air-conditioning system enhanced with an external magnetic field applied to the liquid line between the expansion valve and evaporator, configured to im refrigerant flow and reduce frictional losses.

Complete Specification

Description:DESCRIPTION:

Field of the invention:

[0001] The concept focuses on improving residential air-conditioning systems by integrating magnetic fields and nano lubricants. Air-conditioning systems using vap compression refrigeration cycles (VCRS) are critical for sustaining acceptable living conditions in residential, commercial, and industrial environments. However, the requirements of these systems have a considerable impact on global energy consumption, demanding novel techniques to enhance efficiency. This breakthrough fo on the liquid line of the refrigeration system, where applying a strong magnetic field (8000 Gauss) modifies the refrigerant's molecular dynamics, lowering frictional and enhancing flow characteristics.

The incorporation of Fe_3O_4 nanoparticles to the refrigerant creates a nano-coolant that improves heat transmission and minimizes compressor workload. Nanotech significance in thermal systems is gaining traction due to its ability to drastically improve thermodynamic and operational parameters. The field applies principles fr mechanical engineering, material science, and energy conservation to provide environmentally responsible and cost-effective solutions.

This multidisciplinary approach underscores the importance of merging classical engineering methods with modern technological advances to address challenges i energy efficiency and performance optimization. By demonstrating the applicability of these enhancements under varying operational conditions, the innovation contributes to the ongoing development of sustainable and energy-efficient cooling technologies for domestic air-conditioning systems.

Background of the invention:

[0002] This study examines the combined influence of magnetic nanoparticles and an external magnetic field on the performance of a domestic vapor compressior

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