

Innovations in Refrigeration Compressor Technology: A Review of Recent Developments

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Abstract: *This paper provides a panoramic overview of recent innovations in refrigeration compressor technology. The dynamic landscape of this field has witnessed transformative advancements driven by escalating demands for energy efficiency, environmental sustainability, and practical feasibility. Through an analysis of participant ratings, key innovations such as Variable Speed Compressors (VSC) and Intelligent Control Systems (ICS) have emerged as frontrunners, optimizing energy consumption and integrating data-driven decision-making. Furthermore, innovations like Oil-Free Compressors (OFC) and Alternative Refrigerants (AR) showcase notable contributions to reducing environmental impact. While challenges in practical implementation persist, these developments offer a promising trajectory for a greener and more advanced future, empowering industries to align with regulations and meet evolving global needs. This study underscores the significance of these innovations for researchers, engineers, policymakers, and stakeholders, serving as a compass to guide the refrigeration industry towards enhanced efficiency and sustainability.*

Keywords: Refrigeration Compressor Technology, Innovations, Recent Developments

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- [12]. Calm, J. M. ince its initial recognition in 1928 and commercialization in 1936, R-22 has been applied in systems ranging from the smallest window air condition-ers to the largest chillers and heat pumps, including those for district cooling and heating. Individual equipment using this versatile refrigerant ranges from 2 kW to 33 MW (0.5 to 9,500 tons) in cooling capacity. R-22 use includes equipment with rotary-rolling-piston, recipro.
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