

Cavgenx Heat Pump Turbine: A Sustainable Solution to AI Data Centers' Water Challenge

Sustainable Solutions to AI Data Centers' Water Challenge Include Developments like the Cavgenx Heat Pump Turbine Which Combines Cooling and Hydraulic Power

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EINPresswire.com/ -- In a recent development, [Cavgenx](#) introduces the Heat Pump Turbine, a combined cooling and power (CCP) system designed to address the significant water usage in AI data centers. This

comes in the wake of a University of California, Riverside [study](#) revealing the substantial fresh water consumption by AI queries, notably those from ChatGPT. The study found that 20 to 50 AI queries could use about half a liter of water, largely due to steam emissions from data processing centers.

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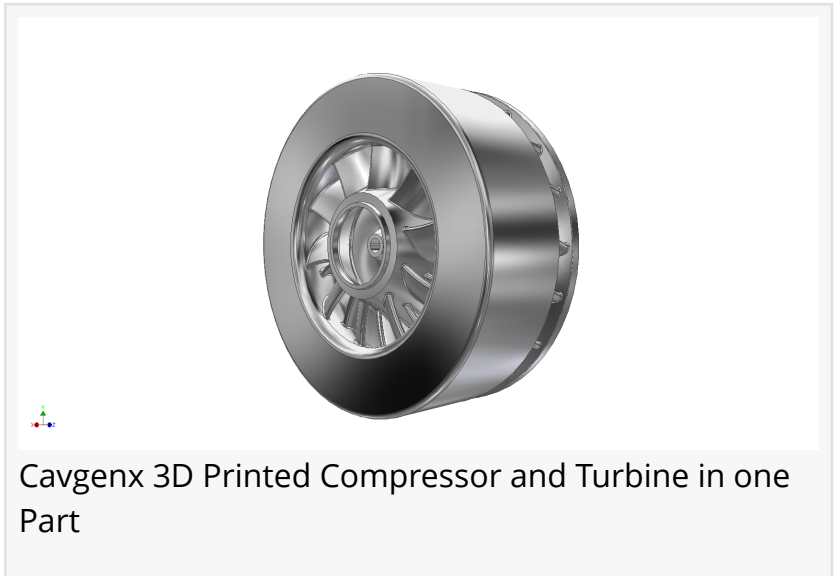
The heat pump turbine is basically a heat pump on steroids, with combined functions to provide transformative energy generation of cooling and hydraulic power.”

Greg Giese, CEO of Cavgenx

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Addressing the Water Footprint of AI Data Centers

Data centers, like those operated by Google in the U.S., which consumed an estimated 12.7



billion liters of fresh water in 2021 alone for cooling, stand to benefit immensely from this technology. The Cavgenx Heat Pump Turbine's ability to utilize waste heat reduces the need for external water sources, thereby conserving this precious resource.

Enhanced Efficiency with Salgenx Saltwater Battery Integration

The heat pump turbine synergizes effectively with the Salgenx saltwater battery, creating a dynamic energy-saving duo. This system capitalizes on the ability to store cool thermal energy within the saltwater battery's electrolyte during off-peak hours, when electricity is more affordable. This stored energy can then be utilized during peak hours, providing a thermal heat sink when it's most needed. This integration not only yields considerable cost reductions for data centers and commercial entities but also enhances operational efficiency.

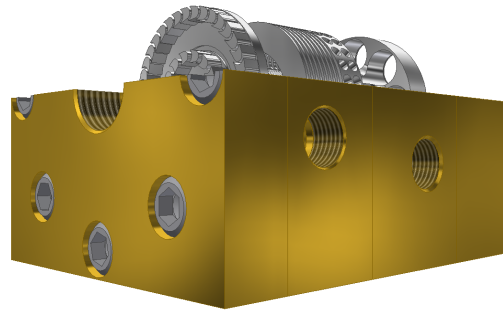
[Calmac](#)'s longstanding experience with this approach is noteworthy. Their product, Icebank, has been successfully implemented in over 4,000 installations across 37 countries. This strategy of cold thermal storage for grid-based rate arbitrage has not only facilitated significant energy savings but also contributed to numerous LEED certifications, showcasing its effectiveness and sustainability.

Transforming Waste Heat into an Asset

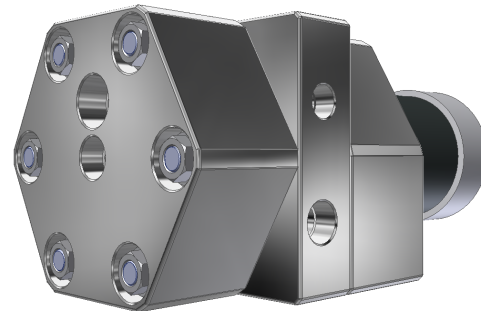
This groundbreaking technology from Cavgenx is more than just an advancement in CCP systems. It represents a paradigm shift in how we view and manage the water footprint of technology infrastructures. By converting waste heat into cooling and power, the Cavgenx Heat Pump Turbine aligns with global efforts towards sustainability and efficient energy use.

A Leap Towards a Greener Future

The introduction of the Cavgenx Heat Pump Turbine is a significant step in addressing the



Turboshaft Heat Pump which delivers hydraulic power and cooling functions



Cavgenx Heat Pump Turbine Assembly

environmental impact of AI data centers. This technology is not just a solution to current challenges but a gateway to a more sustainable and water-efficient future in the tech industry.

Cavgenx is a division of Infinity Turbine, a company with a rich history in ORC turbine design and thermal processor development since 2008, along with extensive experience in CO2-based technologies since 2004. The Modular Fluid Handling Device, an active patent (US7726331B1), enables the stacking of gas and liquid processing blocks like building blocks to create a turboshaft heat pump cycle.

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