

# Infinity Turbine Introduces Revolutionary Cavitation Compressor Pump for Heating and Cooling Applications

*Infinity Turbine has developed a cavitation compressor pump, with one moving part, which is set to transform heat pumps used for heating and cooling.*

MADISON, WISCONSIN, USA,  
December 1, 2023 /EINPresswire.com/  
-- [Infinity Turbine](#) LLC announces a further expansion of its innovative heat pump turbine with integrated [Cavgenx](#) cavitation compressor pump, now encompassing absorption cooling and specialized cooling for AI data centers.



Infinity Turbine Cavitation Compressor Pump

## How it Works

The Cavgenx cavitation pump represents a significant advancement in refrigeration technology, serving as a highly efficient alternative to conventional refrigeration compressors. Unlike traditional compressors that rely on pistons or gears to compress refrigerant, the Cavgenx pump utilizes a uniquely designed spinning disc. This innovative approach harnesses the power of cavitation, where the rapid formation and collapse of vapor bubbles in a liquid induce a phase and pressure change. This method not only simplifies the mechanism, as the pump consists of just one moving part, but also enhances efficiency compared to standard refrigeration compressors. The streamlined design and improved operational efficiency make the Cavgenx cavitation pump a cutting-edge solution in the field of refrigeration.

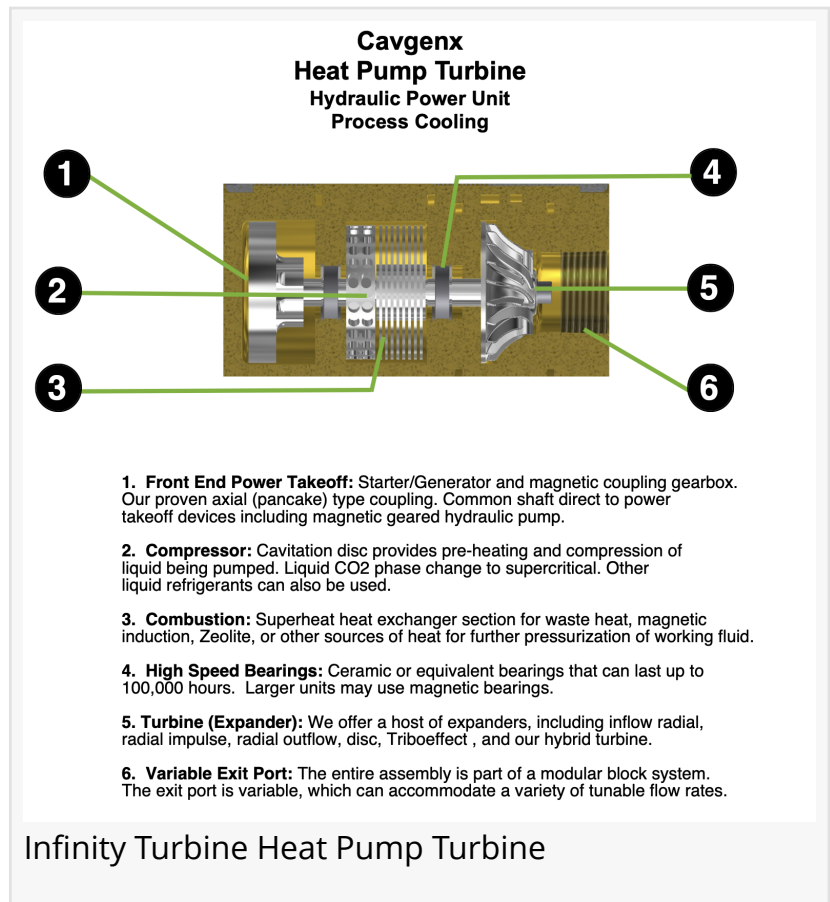
## CO2 as a Versatile Working Fluid and Refrigerant

At a temperature of 31 C, liquid CO2 transitions into a supercritical state, smoothly shifting from liquid to pressurized gas. This property is particularly advantageous for reclaiming waste heat and efficiently harnessing low-temperature solar energy. CO2's distinctive attributes make it an excellent choice for various applications. It serves as an effective working fluid in heat pumps

and the Organic Rankine Cycle, and exhibits a Tribo-effect when passed over Teflon surfaces (electrostatic precipitation). Additionally, CO<sub>2</sub> is a potent organic solvent, useful in processes like decaffeinating coffee and recovering valuable metals from discarded electronic circuit boards. Importantly, CO<sub>2</sub> is safe, being non-toxic and non-flammable, and does not harm the ozone layer. Its ability to be easily recycled further enhances its environmental and practical appeal.

### New Heat Pump Applications:

1. **Cooling for AI Data Centers:** The system's ability to utilize the phase change of working fluid for refrigeration presents a groundbreaking solution for cooling AI data centers. Given the high energy demands of these data centers, Infinity Turbine's technology provides an efficient, eco-friendly cooling method, significantly reducing the carbon footprint of these facilities.
2. **Absorption Cooling:** Infinity Turbine's technology can now be used for absorption cooling systems. This application is particularly valuable in industries and buildings where cooling is essential, offering a sustainable and efficient alternative to traditional cooling methods. The heat pump can be used for both heating and cooling a building. During winter, the heat pump extracts heat from the outside air or ground and transfers it inside. In summer, the process is reversed to cool the building.
3. **Hot Water Supply:** Heat pumps can efficiently produce hot water. This is particularly useful in large buildings like hotels or apartment complexes where there is a constant need for hot water.
4. **Agricultural Applications:** In agriculture, such systems can be used for temperature control in greenhouses, helping to create ideal growing conditions for different plants. They can also be used for heating water in fish farms.
5. **Energy Recovery and Management:** Energy recovery systems can capture and reuse waste heat from industrial processes. This not only reduces energy costs but also minimizes environmental impact.



6. **Geothermal Applications:** When combined with geothermal systems, they can provide an extremely efficient heating and cooling solution. The heat pump is used to transfer heat between the building and the ground, leveraging the constant temperature of the earth.
7. **Swimming Pools:** They can be used to maintain the temperature of water in swimming pools, ensuring comfortable swimming conditions throughout the year.
8. **District Heating and Cooling:** In district heating and cooling systems, these pumps can play a crucial role in efficiently distributing thermal energy to multiple buildings in an area.
9. **Integration with Renewable Energy Sources:** They can be integrated with solar or wind energy systems to enhance overall efficiency and sustainability.
10. **Heat Recovery from Water Sources:** They can extract heat from water sources like rivers or lakes for heating purposes, especially in regions where these sources have relatively stable temperatures.
11. **Enhanced Solar Panel Efficiency:** Cooling photovoltaic (PV) solar panels can lead to a notable increase in their efficiency. The efficiency of solar panels generally decreases as their temperature rises, typically losing about 0.25 to 0.5 percent of their efficiency for every degree Celsius above 25 C (77 F). This is due to the physics of semiconductors used in these panels, where increased temperature can lead to increased resistance and lower voltage output.
12. **Electrostatic Precipitation:** The cavitation pump can be used to pressurize liquid CO<sub>2</sub>, when expanded produces static DC electricity. The resulting static charge can be used for particulate removal from air, charging particulates in a closed-loop process (collecting plant oil), as a filter for particulates in a process to prevent fouling of machinery, pollution control, deicing aircraft wings and other equipment prone to freezing.
13. **Utilizing an Accumulator and Bladder for Hydraulic Fluid Pressurization:** A hydraulic accumulator is a pressure storage reservoir in which hydraulic fluid is held under pressure by an external source. The external source can be a spring, a raised weight, or a compressed gas. In the case of a bladder accumulator, the external source is a compressed gas.

## Continuing to Expand the Horizons of Renewable Energy

This innovative technology offers efficient, eco-friendly solutions for cooling and heating in various industries, including specialized applications like AI data centers and absorption cooling systems. The Cavgenx cavitation compressor pump, central to this expansion, enhances efficiency by using a single moving part and the process of cavitation, marking a significant advancement in refrigeration technology. The technology is available for licensing for your specific industry.

## A Sustainable Future with Infinity Turbine

Infinity Turbine's continued advancements in renewable energy technologies represent a significant stride towards a more sustainable and environmentally conscious world. The company remains dedicated to developing solutions that not only address current energy challenges but also pave the way for a cleaner, more sustainable future.

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