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model-it-10- redstone-turbine- orc-by-infinity- turbine

Infinity Turbine
LLC

IT 10 Redstone Turbine ORC for Waste Heat
to Energy Applications by Infinity Turbine



This webpage QR code

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Company Name: Infinity Turbine LLC
 Product: IT 10 Redstone Turbine
 Applications: ORC
 Construction: Aluminum, Stainless Steel, 3D Metal, or cast composites
 Uses: Organic Rankine Cycle miniature power production from waste heat.Build: IT10 (1-10 kW).

PDF Version of the webpage (first pages)

<https://infinityturbine.com/model-it-10-redstone-turbine-orc-by-infinity-turbine.html>

IT 10 Redstone Turbine

The IT 10 Redstone Turbine is an experimental 6 inch diameter turbine designed for small scale power production for the home or low power applications (IT10 1-10 kW).

Project Goals: Integrate a liquid pump into one rotating element. Instead of a common shaft driven feedpump, make the turbine counter-rotating in one piece.

Working Fluid: R-245fa, R-134, Compressed Air, pressurized water, and a Stainless Steel version with CO₂.

Modular Block Assembly: Used since 2008, our Modular Block concept has been used in hundreds of turbine prototypes and production assemblies. This version uses square blocks with 3/8 fasteners and threaded bores.

Purpose: Small power production without the need for a external feed pump.

Rapid-Configuration: This assembly allows you to quickly configure turbines and test various working fluids and heat sources. The basic design is for 300 psi or less, which is determinant on the back magnetic coupling block which is made from HDPE. If you can make from nonmagnetic metal or composite fiber for a thicker (stronger) back, then you can use flows with greater pressure.

Magnetic Coupling: The design has a basic 6 inch diameter magnetic coupling and follower, which allows you to have a generator or drive unit mounted exterior.

Plans and licensing available.

IT10 Revenue based on gross sales or grid savings, not including cost of acquiring waste heat flow or pumps.

Revenue from IT10 (24 hours x 365 days per year x 10 kWh = 87,600 kWh per year):

at \$.20 per kWh = \$17,520 USD per year

at \$.40 per kWh = \$35,040 USD per year

at \$.80 per kWh = \$70,080 USD per year

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IT 10 Redstone Turbine Assembly

Turbine Flow: The goal of this project is to show that a ORC turbine can be made with one rotating part. The working fluid is introduced into the front center of the rotor, goes through a heating project using cavitation or induction magnetic heating, is further heated (if necessary) and then expanded through the outer part of the rotor.

Functions:

1. Internal cooling via integral fluid channels.
2. Preheat via center of rotor (while heated flow is expanded).
3. Cavitation heating of liquid.
4. Induction heating of liquid.
5. Counter-rotating flow.
6. Common rotating element allows turbine to power the feed pump, cavitation, and induction heating.
7. Magnetic or legacy permeter bearings (no center shaft per se since the rotor becomes the shaft).
8. Magnetic coupling drive for shaft drive or coil generation output options.
9. Low maintenance from less parts and one rotating element.
10. Multiple channel options allow additional heating, cooling, or other functions to be performed by the rotating part and working fluid (extraction of materials in working fluid, electrostatic precipitation, spinning disc reactor functions, etc.).

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