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Infinity Turbine
LLC

model-it-xr-turbine- organic-rankine- cycle-expander- and-generator-for- waste heat to

IT XR Turbine Organic Rankine Cycle
Expander and Generator for Waste Heat to
Energy



This webpage QR code

Structured Data

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Company Name: Infinity Turbine LLC

Product: IT XR Turbine

Applications: ORC, compressed air expansion, water turbine, and more.

Construction: Aluminum, Stainless Steel, 3D Metal, or cast composites

Uses: Organic Rankine Cycle miniature power production from waste heat. Build: IT10 (1-10 kW).

Purpose: One part turbine with perimeter bearings and back mounted magnetic coupling for generator coil or exterior shaft drive or motor generator.

PDF Version of the webpage (first pages)

<https://infinityturbine.com/model-it-xr-turbine-organic-rankine-cycle-expander-and-generator-for-waste-heat-to-energy-by-infinity-turbine.html>

IT XR Turbine

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

Project Goals: Make turbine fabrication simple by 3D printing a one part turbine with perimeter bearings and back mounted magnetic coupling for generator coil or exterior shaft drive or motor generator.

Common Shaft Drive: The magnetic coupler is bored into the rotor assembly, which allows coil power generation, or a magnetic follower disc for touchless shaft drive, or exterior motor generator options.

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

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.

Magnetic Coupling or Large Diameter Gruvlok Pipe Housing Assembly: The unique design has a basic 6 inch diameter which allows for direct-to-motor generator mounting or 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 XR Turbine

Project Goals: Make turbine fabrication simple by 3D printing a one part turbine (rotor) with perimeter bearings and back mounted magnetic coupling for generator coil or exterior shaft drive or motor generator.

IT XR Turbine

Modular block assembly makes rapid prototyping and fabrication a reality.

IT XR Turbine

Modular block 3/8 inch bores and fasteners make assembly for all blocks and housings modular and standardized.

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IT XR Turbine

We've fabricated hundreds of magnetic couplers, and have found them to be very useful for sealing in ORC turbines, while providing cooling and exterior shaft drive or generator options. The strength of the magnetic field (magnet strength, distance from coupler, and thickness of separation block wall) must be considered when using high torque applications.
