



ORC and Products Index by Infinity Turbine

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PDF Version of the webpage (maximum 10 pages)

Prime Power Consulting for Data Centers Using Natural Gas Supercritical CO2 and Waste Heat ORC Systems

As data centers face increasing pressure to secure reliable, cost effective, and dispatchable power, natural gas based prime power systems are emerging as a practical alternative to grid dependency alone. This article describes a consulting framework for deploying supercritical CO2 turbine generators paired with waste heat Organic Rankine Cycle systems to deliver resilient, high efficiency power for modern data centers.

Owners of Cat Solar Gas Turbine Generators and the new Boom Aero Derivative Gas Turbines Generators: Take your waste heat and make Combined Cycle power or generate cooling for your data center.

Prime Power Consulting for Data Centers

Natural Gas Supercritical CO2 & Waste Heat ORC Systems



Prime Power Feasibility Studies Load Profiling, Gas Availability, and Cost Analysis	System Architecture Design Supercritical CO2 & ORC Integration Planning	Heat & Mass Balance Modeling Thermodynamic Performance Optimization
Microgrid & Electrical Integration Grid Parallel or Islanded Operation Strategies	Fuel Strategy & Cost Analysis Fuel Economics Sensitivity Analysis	Reliability & Maintenance Consulting Redundancy Planning and Failover Strategy
Environmental & Modular		Owner Engineering

Discover the Revolutionary Range of Infinity Turbine Products: Shaping the Future of Energy Solutions

With our plans, you can construct your own turbine, and if you desire unlimited manufacturing capabilities, you can purchase a license.

Infinity Turbine is dedicated to developing and constructing cutting-edge systems that generate power from various waste heat sources such as industrial, biomass, geothermal, solar, cloud server AI farms, and redox batteries. Additionally, we are actively involved in pioneering strategies for energy storage, production, and deployment using flow batteries.

Turn Waste Heat Into Profit: Brand your ORC system as a waste-to-value solution.

Low-Temp Heat Markets: Performance in low-grade heat (31°C–150°C) using supercritical CO₂, where traditional turbines fail.

Zero to One Moving Parts Options: Cluster Mesh Turbine and supercritical CO₂ pulse cooling provide innovative, low-maintenance breakthroughs.

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Discover the Next Level of Extraction and Heat Pump Tech: Supercritical CO2 Technology on the Versatile Infinity Turbine Processing and Developers Cart

Are you ready to unlock the full potential of natural oils, flavorings, and botanicals?

Introducing Infinity Supercritical: The Future of Efficient Extraction

Full Spectrum Power: Seamlessly extract full-spectrum natural oils, exquisite flavorings, pure fragrances, and potent compounds from beer hops, lavender, and a vast range of other botanicals.

Pure & Clean: Harness the power of Supercritical CO2

Extraction to deliver superior purity, efficiency, and yields.

Beyond Botanicals: The Infinity Experimenter Series

Infinity Supercritical isn't just about oils. Our versatile systems are engineered for cutting-edge research and innovation:

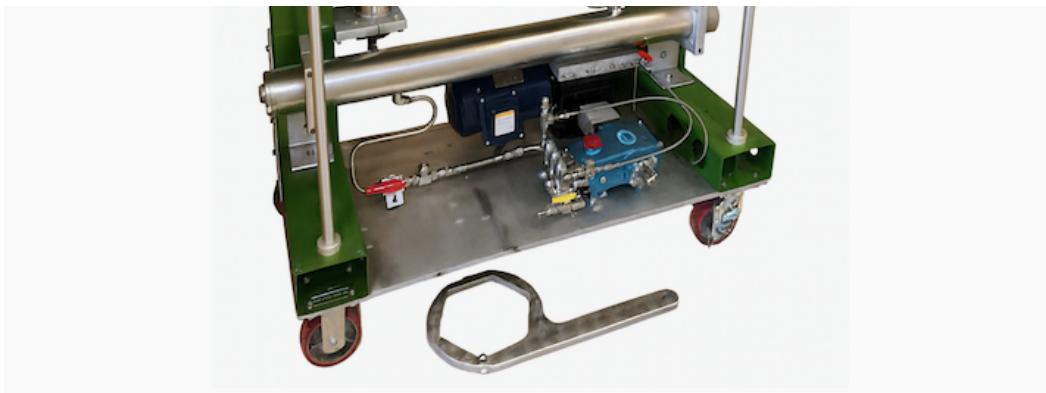
Silver Nanoparticles using sCO2: Silver Nanoparticles Revenue \$600,000+ per year per 10 L machine

Transcritical CO2: Explore the frontiers of heat pumps and ORC turbines.

Advanced Science: Conduct groundbreaking work in nano-science, synthesize ferrofluids, and more!

Whether you're a commercial extractor seeking maximum efficiency or an experimenter pushing scientific boundaries.





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ORC Organic Rankine Cycle by Infinity Turbine: We build the Technology. You build the product.

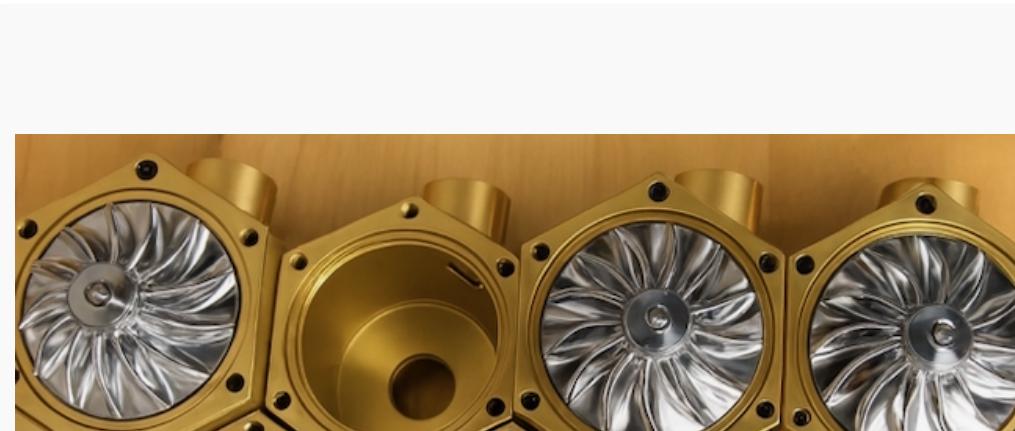
< b > ORC Turbine Generator: < /b > Waste heat 90-120C to energy turbines available for licensing and building. Includes cad/cam files, parts list, and more. Production build license add-on fee, unless otherwise indicated in description below.

Build plans and licensing available for • IT10 • IT20 • •IT50 and • IT250





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Prime Power Consulting for Data Centers
Natural Gas Supercritical CO₂ & Waste Heat ORC Systems

Prime Power Feasibility Studies	System Architecture	Heat & Mass Balance Modeling
Load Forecasting, Gas Availability, and Cost Analysis	Supercritical CO ₂ & ORC Integration Planning	Performance Optimization
Microgrid & Electrical Integration	Fuel Strategy & Cost Analysis	Reliability & Maintenance Consulting
Grid Parallel or Islanded Operation Strategies	Fuel Economics Sensitivity Analysis	Redundancy Planning and Failover Strategy
Environmental & Regulatory Support	Modular Deployment Strategy	Owner Engineering Support

IT10 and IT20 for Remote Gold Mining Operations Using Locally Available Wood Heat or Geothermal Heat for ORC System

Completed ORC Builds and Ready to Ship in Crate:

IT10 (10kW) Full Completed Build: \$100,000 USD.

IT20 (20kW) Full Completed Build with ROT15: \$150,000 USD.

Note: This does not include wood-fired boiler or hot geothermal well and harvesting costs. We recommend building combined system into a standard shipping container or van for ease of transport and use.

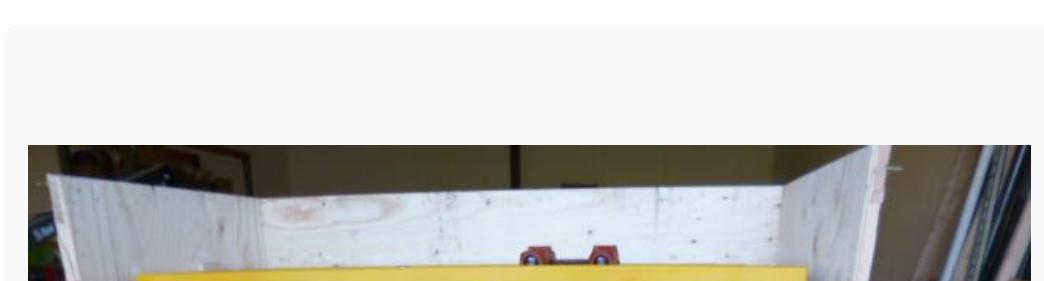
Requires Hot Thermal Oil or water Input: 95-110 C

Requires Cool Liquid. We have a PID program for your specific hot and condenser loop temperatures.

IT20 Revenue based on 24 hours x 365 days per year x 20 kWh = 175,200 kWh per year):

at \$.30 per kWh = \$52,560 USD per year

Note: we chose \$.30/kWh since that is the cost you'd be paying for a diesel generator set power running 24/7 at a cost of \$5.00 per gallon. For remote power, that cost is \$10/gallon or annual fuel cost of \$105,120.





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Radial Outflow Turbine 12 ORC for 10 kW Electrical Production

The ROT 12 ORC turbine was designed for refrigerants such as R245fa.

1-10 kW Output.

Input: 1 inch NPT.

ROT12 Turbine and DC Generator: \$15,000

Flat Pack (machined parts only): \$10,000

ROT 12 Flat Pack for IT10. 10 kW. Manta DC or SCS48 DC type generators.

Housing: Schedule 40 Pipe 304 SS: 12 inch diameter x 24 inch length with Gruvlok grooves.

You supply: Steel pipe for housing, Gruvlok couplings with gaskets, generator, electrical or sensors, feed through fittings, fasteners, assembly.



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Radial Outflow Turbine ROT15 for 15 kW Electrical Production

The ROT 15 ORC turbine was designed for refrigerants such as R245fa.

15 kW Output.

Turbine Inlet Size: 2-11.5 inch NPT.

3050 RPM.

Turbine Inlet Pressure: 100-200 psi.

Heat Input: Limited to generator insulation, if contained within housing. Optional: If generator is mounted outside housing, then a magnetic coupling is required.

ROT15 Turbine and AC Generator (requires grid-tie device): \$30,000

Note: Suggest DC with inverter or Wild AC Generator with rectifier and then to inverter for off-grid use.

Flat Pack (machined parts only): \$20,000

Pump Type AC Motor Generator Suggested:

Nidec US Motors FF15E1XV Vertical Close Coupled Pump Motor

Housing: Schedule 40 Pipe 304 SS: 20 inch diameter x 30 inch length with Gruvlok grooves.

You supply: Steel pipe for housing, Gruvlok couplings with gaskets, generator, electrical or sensors, feed through fittings, fasteners, assembly.



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