

## **Turbomachinery Design Engineer**

ThermaDynamics Rail LLC is a technology development firm focused on advanced waste heat energy recovery and conversion systems. Our teams of specialized engineers, technicians and machinists work together to execute the design, simulation, manufacturing and testing of electrical, mechanical and thermo-hydraulic products whose applications are aimed at developing advanced energy systems.

We are currently looking to hire a highly motivated and well-prepared Turbomachinery Design Engineer to join our team. Authorization to work for any US employer is a pre-condition of employment.

### **Job Description**

The role of Turbomachinery Design Engineer is a great opportunity for an entrepreneurial, self-motivated individual who thrives in a fast-paced, creative environment.

The position entails working with a multidisciplinary team as part of a new product development cycle, which includes developing concepts and taking them from initial design and prototyping through commercialization. The candidate will be required to work closely with fellow engineers, technicians and machinists to deliver various projects and support market deployment.

### **Job Duties and Responsibilities**

- Analyze and select adequate type of turbines including various types of radial in-flow and out-flow, axial and counter-rotating turbines for the conversion of thermal energy carried by various working fluids to electricity via direct coupling with high-speed generators
- Produce mechanical designs for new turbines (3D CAD preferentially in SolidWorks)
- Produce 3D turbine designs, coordinate with manufacturing assembly and testing
- Support coupling of turbine with high-speed generators with considerations for bearing loads, rotordynamic constraints, seals selection, materials
- Using ThermaDynamics Rail developed codes for cycle modelling and support the development of new ones
- Plan system tests, assist with data collection and post processing
- Take part in project meetings with academic and industrial partners
- Produce technical documentation and progress reports
- Visit clients' sites, perform feasibility studies, produce integration strategies

### **Skills and Qualifications**

- Bachelor of Science or Engineering degree in Mechanical Engineering
- 3-5 years of experience with the design of turbines/high speed rotating machines
- Proficient in CFD software (Ansys FLUENT)
- Proficient in CAD packages (Solidworks/AutoCAD)
- Experience in turbine design (from 0D to manufacturing)



- Experience with different turbine manufacturing techniques: CNC machining, welding, casting)
- Experience with thermodynamics/fluid mechanics
- Understanding of bearing and seal design
- Able to carry out jobs independently and identify potentially more effective methods
- Proficient in MATLAB
- Project management skills
- Problem solving skills
- Excellent oral and written communication skills (English)

**Desirable:**

- Experience with assembly of complex mechanical and hydraulic systems
- PhD/MRes in rotordynamics/turbine design
- Knowledge of balancing techniques

**Candidate Selection Process**

Candidates will be evaluated and selected based on their professional abilities and personal attributes demonstrated during the following stages of the selection process:

- Not to exceed 30 minutes PowerPoint presentation given by candidates on one of their previous non-confidential engineering design projects. This could be a professional or personal project. Candidates should be prepared to discuss the reasoning of the design on a technical level and show their experience in problem solving
- 20 to 30 minute interviews with selected team members
- 30 to 45 minute CAD knowledge assessment, including discussions on design intent, design phases, organization and modeling of parts to support manufacturing drawings according to required dimensions and tolerances.

This selection process will end with an interview with the company's Project Manager to jointly analyze and discuss the results of the candidates' performance and assess their potential for employment with the company.