

Mechanical 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 Mechanical Design Engineer to join our team. Authorization to work for any US employer is a pre-condition of employment.

Job Description

The role of Mechanical 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 design and manufacture engineering components such as turbines, motors and heat exchangers, as well as auxiliary systems to support the overall architecture of various designs; and will be responsible for creating and maintaining 3D models, assemblies and fabrication drawings using 3D CAD packages such as SolidWorks.

Job Duties and Responsibilities

- Evaluates mechanical and electromechanical systems and products by designing and conducting research programs, and by applying principles of mechanics, thermodynamics, hydraulics, heat transfer and materials engineering.
- Designs parts, components and assemblies to meet requirements of assigned projects.
- Creates CAD models, including part and assembly drawings, Bill of Materials (BOMs) to support manufacturing, testing and assembly, and support components to assist with assembly.
- Performs analysis and develops computational models using Matlab and other forms of engineering software.
- Works with senior and fellow engineers in the US and abroad to develop alternatives and options for further development of projects and products.
- Supports product sourcing, purchasing and selection as required by the design process.
- Provides technical and engineering support for day-to-day processing, product development and process improvements.
- Confirms system and product capabilities by designing feasibility and testing methods and properties.
- Develops manufacturing processes by designing and modifying equipment for fabricating, building, assembling and installing components.



- Assures system and product quality by designing testing methods, testing finished product and system capabilities, and confirming fabrication, assembly and installation processes.
- Prepares product reports by collecting, analyzing and summarizing information and trends.
- Participates in technical reviews of requirements, specifications, designs and codes.

Skills and Qualifications

- Bachelor of Science or Engineering degree in Mechanical Engineering
- Strong knowledge of CAD (Solidworks, AutoCAD, Creo) modeling, drawings and machine design with experience in design analyses. Experience with CAD-based FEA and CFD analysis and simulations is a plus
- Hands on experience with bearings, turbo-machinery and heat exchanger design is a plus
- Experience with programming for engineering applications (Matlab, Python)
- Good understanding of manufacturing processes including turning, milling and welding. Experience with CAM software is a plus
- Willingness to take on non-traditional tasks, roles, responsibilities and challenges needed to accomplish company goals and objectives

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.