



ELECTRIC MACHINERY COMPANY, INC.

www.electricmachinery.com

POSITION: **Mechanical Design Engineer**

DEPARTMENT: Engineering Department

Electric Machinery was founded in 1891. For over 100 years, Electric Machinery has earned its reputation for designing, manufacturing, and servicing large, custom-engineered electrical motors and generators for the U.S. and worldwide markets. Electric Machinery services oil and gas refinery, chemical, utility, general industrial, pulp and paper, and municipal markets. Electric Machinery products include:

- Synchronous motors
- Induction motors
- Synchronous generators
- Turbo generators
- Magnetic drives
- Brushless excitation system

PRIMARY OBJECTIVE OF THE POSITION:

The Mechanical Design Engineer is responsible for the product design function that specifies “what” is required (materials, tolerances, limits, etc.) on the product line documentation, that includes motors, generators and magnetic drives. The Engineer will support customer orders from the proposal phase thru the design, development, manufacturing, testing, and field service/aftermarket phases. The Mechanical Engineer must apply fundamental engineering principles and experience to solve technical design support personnel, and provide engineering documentation of projects and processes. The Mechanical Engineer must also drive continuous mechanical advancement and improvement of the problems and develop new product solutions. Responsibilities include the ability to develop budgets, determine manpower and technical resources coordinate assignments of engineers and other company’s products and mechanical design-related processes. Also, the Engineer will be responsible for collaboration and sharing of best mechanical engineering practices within the WEG Company.

MAJOR AREAS OF ACCOUNTABILITY:

1. Must be an enthusiastic self-starter, able to organize and pursue broad objectives. Strong people skills and the ability to manage multiple, changing priorities. Support and

implement process improvements which enhance the company's responsiveness and profitability.

2. Establish project plans for product development consistent with the overall company strategic plan.
3. Determine project schedules to complete projects in required time.
4. Select materials and purchased components to best meet customer requirements at the lowest cost.
5. Provide input to management for financial planning, capital planning, and product development.
6. Provide effective project management for product development.
7. Write specifications, Material Specifications, Process Specification, and project reports.
8. Provide direction to engineers, drafters, and other support personnel as required to successfully complete projects.
9. Provide technical support to other departments as required resolving technical issues to meet special customer requirements.
10. Incorporate manufacturability input provided by Manufacturing Engineering into designs.
11. Provide technical direction in product development and make technical decisions based on sound engineering practice.
12. Continuously develop and maintain Design Standards to govern the conventional and computerized mechanical design analysis methods in order to facilitate the design process and reduce design lead times. This includes hand calculations, spreadsheets, FORTRAN programs, and finite element methods. Areas include mechanical structural analysis, bearing and lubrication design, rotor dynamics, vibration, modal analysis, computational fluid dynamics CFD, and thermal analysis. Ensure calibration of design programs with test data.
13. Demonstrated ability to understand, evaluate, and solve complex issues of technical content with guidance and technical support.
14. Review customer's specification and offer technical advice. Visit customer sites to determine how to best apply machine design technology and improve machine performance.
15. Direct standardized models that will substantially reduce design cost and time for products and systems.

16. Perform other activities related to the ones above as required by the Leader, Manager of Engineering or Director of Engineering

KNOWLEDGE, SKILLS, AND ABILITIES:

1. Education: BS degree in Mechanical Engineering required, machine design emphasis preferred.
2. Experience: 0 - 7 years experience in the design or development of large motors and/or generators, or equal level of product complexity.
3. Knowledge of documentation requirements of ISO 9001.
4. Knowledge and understanding of engineering operating systems within the department and understanding of how engineering interfaces with other departments.
5. Computer literate, with knowledge of current operating systems and software common to business applications (SolidWorks, AutoCAD, Microsoft Office Products including Word, Excel, PowerPoint and Project).
6. Knowledge on any programming language
7. Strong machine design background involving mechanical structural analysis, bearing and lubrication design, rotor dynamics, vibration, modal analysis and thermal analysis using both conventional and computerized mechanical design analysis methods.
8. Ability to communicate effectively both verbally and in writing both internally & with customers
9. Physical ability to travel freely within manufacturing and office facilities. This requires climbing stairs and moving over, around, and about shop machinery. Have the Physical ability to lift and carry up to 25 pounds.
10. Must be able to travel worldwide on short notice