

# **CONNOR MCNEELY**

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## **SUMMARY**

Mechanical Design Engineer with 5+ years of experience in product design, CAD modeling, and mechanical systems development. Expert in SolidWorks (3D modeling, FEA, CFD, Simulation), parametric design, and engineering drawings with GD&T per ASME Y14.5. Proven track record designing pumps, pressure vessels, and mechanical components from concept through production. Skilled in DFMA, tolerance analysis, design optimization, material selection, and cross-functional collaboration with manufacturing, quality, and supply chain teams.

## **CORE SKILLS**

### **CAD/Design Software:**

SolidWorks (3D Modeling, Assemblies, Drawings, FEA, CFD, Simulation), AutoCAD, Inventor, CATIA, Fusion 360, Parametric Modeling, Solid Modeling, Surface Modeling, Mathcad, MATLAB

### **Product Design & Development:**

Mechanical Design, Product Design, Component Design, Assembly Design, Concept Development, Design Optimization, New Product Introduction (NPI), Product Lifecycle Management (PLM), Prototyping, Design Validation

### **Engineering Analysis & Calculations:**

Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), Stress Analysis, Structural Analysis, Thermal Analysis, Hand Calculations, Engineering Calculations, Design Verification, FMEA

### **Technical Documentation & Standards:**

GD&T (ASME Y14.5), Engineering Drawings, Manufacturing Drawings, 2D Drawings, Technical Specifications, Design Documentation, BOM Creation, Bill of Materials, API 610, ASME Section VIII, ISO 9001, ISO 5199, ASTM, ANSI

### **Manufacturing & Design for Manufacturing:**

DFMA (Design for Manufacturing and Assembly), DFM, DFA, Tolerance Analysis, Tolerance Stack-up, CNC Machining, Sheet Metal Design, Casting Design, Injection Molding, Welding Design, Manufacturing Processes, Supplier Collaboration

### **Materials & Material Selection:**

Material Selection, Metals (Stainless Steel, Aluminum, Carbon Steel, Duplex Stainless), Engineering Plastics, Composite Materials, Material Properties, ASTM Standards, Corrosion Resistance

### **Design Tools & Methodologies:**

Design Reviews, Engineering Change Orders (ECO), Configuration Management, Design Controls, Requirements Analysis, Cost Reduction, Value Engineering, Continuous Improvement, Root Cause Analysis

### **Automation & Controls:**

PLC Programming (Allen-Bradley, Siemens), SCADA, HMI, Ladder Logic, Machine Vision (Cognex), Robotics (Fanuc)

## **Programming & Data Analysis:**

Python, SQL, Visual Basic, Excel (Advanced Formulas, VBA), MATLAB, Data Analysis, Machine Learning

## **PROFESSIONAL EXPERIENCE**

### **Lead Mechanical Design Engineer**

Pump Manufacturer | Youngsville, LA | December 2023 - Present

- Create 3D CAD models, assemblies, and detailed 2D manufacturing drawings using SolidWorks for API 610 centrifugal pumps and pressure vessel components, applying GD&T per ASME Y14.5 standards
- Lead mechanical design and product development from concept through production, managing full product lifecycle including requirements analysis, design reviews, prototyping, testing, and manufacturing support
- Perform finite element analysis (FEA) and computational fluid dynamics (CFD) simulations using SolidWorks Simulation to validate structural integrity, optimize component designs, and verify performance requirements
- Execute engineering calculations including stress analysis, pressure ratings, and wall thickness assessments using Excel-based models and hand calculations to support design decisions and verify code compliance
- Apply DFMA principles and tolerance analysis to optimize designs for manufacturability, achieving 15% manufacturing cost reduction while improving assembly efficiency and maintaining design performance
- Perform material selection for mechanical components including duplex stainless steel, aluminum alloys, and engineering plastics based on service requirements, applying ASTM specifications and material properties analysis
- Collaborate with manufacturing engineers, machine shops, and casting suppliers to ensure design manufacturability, review tolerance stack-ups, and resolve production issues through engineering change orders (ECO)
- Generate comprehensive technical documentation including design specifications, BOMs (bill of materials), inspection procedures, test plans, and engineering calculations for customer deliverables and regulatory compliance
- Develop and execute design validation plans including prototype testing, hydrostatic pressure testing, and performance verification to ensure products meet engineering requirements and quality standards
- Conduct root cause analysis of design and manufacturing issues, implement corrective actions, and perform FMEA to improve product quality and reliability throughout the product lifecycle
- Lead cross-functional design projects coordinating with engineering, manufacturing, quality assurance, and supply chain teams to deliver pump systems for offshore oil and gas applications meeting API 610, ASME, and NORSO standards

### **Automation/Mechatronics Engineer**

John Deere Turf Care | January 2023 - July 2023

- Reduced takt time by 20% and improved ergonomics by 30% through automation system design and MES programming

- Programmed Allen-Bradley PLCs using ladder logic and maintained SQL databases for manufacturing execution systems
- Designed and implemented mistake-proofing solutions using PLCs, HMIs, machine vision systems, and smart torque tools
- Led continuous improvement projects using Lean Six Sigma methodology to enhance safety, quality, and productivity
- Updated electrical schematics, PLC programs, and HMI configurations to optimize manufacturing equipment performance

### **Automation/Process Engineer**

Sulfur Operations Support Inc. | September 2022 - December 2022

- Designed injection molds using CAD, FEA, and CFD analysis, reducing manufacturing costs by 20% and scrap rates by 15%
- Improved product quality by 10% through scientific molding techniques, RLG methods, and DOE (Design of Experiments)
- Optimized manufacturing processes through VFD troubleshooting and equipment modifications, increasing throughput by 25%
- Implemented Lean Six Sigma and continuous improvement initiatives to reduce cycle times and improve process efficiency
- Enhanced quality inspection processes using machine vision, IoT dashboards, and Kaizen methodologies

### **Inspection/Automation/Mechanical Engineer**

Pfizer | Kalamazoo, MI | September 2021 - September 2022

- Contributed to production of 759M vaccine doses through mechanical design improvements and process optimization
- Designed machine components and assemblies using SolidWorks, Inventor, and AutoCAD with GD&T per ASME Y14.5
- Performed FEA structural analysis to validate component designs and ensure compliance with engineering requirements
- Developed FMEA documentation and implemented corrective actions to resolve quality issues in packaging operations
- Led Kaizen events and preventative maintenance initiatives ensuring GMP, FDA, and ASME compliance

### **Mechanical Design Engineer - Senior Capstone Project**

Galaxy Products LLC | New Iberia, LA | August 2018 - August 2019

- Led mechanical design of CNC Pneumatic Gang Drill System, reducing equipment downtime by 75% and improving drilling efficiency by 50% through innovative product design
- Managed multidisciplinary engineering team through complete product development cycle including P&ID development, SolidWorks 3D CAD modeling, and PLM documentation
- Designed aluminum mounting system using DFM principles and GD&T (ASME Y14.5), coordinating CNC machining operations for component fabrication

- Conducted FEA and CFD analysis to validate design performance, performing FMEA to ensure system reliability per ASTM and ASME standards

## **EDUCATION**

### **Bachelor of Science in Mechanical Engineering**

Louisiana Tech University | Ruston, LA | August 2015 - August 2020

Key Coursework: Mechanical Design, Machine Design, CAD/CAE, Finite Element Analysis, Fluid Mechanics, Thermodynamics, Materials Science, Manufacturing Processes, Control Systems

## **CERTIFICATIONS AND TRAINING**

- Certified SolidWorks Professional (CSWP) – In process of obtaining
- Lean Six Sigma Methodology Training
- PLC Programming (Allen-Bradley, Siemens)
- Machine Learning and Python Programming
- Engineering Standards Training (API 610, ASME Section VIII, GD&T, ISO 9001)