Rodney A. Engelbrecht

814 Wellington Drive, Springfield, Ohio 45506 • (937) 324-1887

rengengr@hotmail.com

OBJECTIVE **Product or Application Engineering**

Join a team of talented professionals and utilize my skills in engineering, 3-D modeling and FEA, communications, problem solving, and analytical thinking to improve product designs and manufacturing processes, reduce costs, and increase profitability.

DESIGN SUMMARY

Designed parts to be manufactured utilizing the following processes: anodizing, die casting, investment casting, sand casting (steel, aluminum, gray and ductile iron), extrusion, forging, grinding, heat treating (carburizing, nitriding, flame, induction, and through hardening), black oxide coating, machining, plating (hard chrome, duplex chrome, electroless nickel) stamping, shot peening, thread rolling, and welding. Non-metallic materials include nitriles, nylons, teflon, and poly-urethanes.

SELECTED ACHIEVEMENTS

Redesigned shank to head area of rotary shank coupler for major railcar casting manufacturer. Researched redesign options, created/tested prototypes, and implemented change. Reduced stress 30%, extending life to near infinite.

Automated Structural Design Process and Programmed Computer to design hydraulic cylinders. Analyzed design steps, resolved stress equations to directly compute minimum dimension/material strength, and authored computer program. Eliminated calculation errors and oversights, saved 200-400 design hours annually.

Invented new part for rotary shank coupler. Analyzed bolt breakage, conceived design options, and created prototype. Received Patent No. 5,967,349 for successful invention.

Fixed passenger coupler operation problem where new sub-assemblies with patented feature did not work in older worn coupler assemblies. Identified critical surfaces and analyzed old working sub-assemblies. After design modifications, new sub-assemblies function correctly.

Launched R & D testing lab at cylinder manufacturing plant for international forklift attachments manufacturer within $25,000 budget. Obtained capital approval, selected/purchased instrumentation and hydraulic equipment, designed fixtures, and programmed PLC. Successfully tested new designs of hydraulic cylinders.

Solved freight coupler parts interchangeability problem. Identified indirectly dimensioned feature relationships and devised method for isolating true problem. Feature relation causing problem was conclusively identified and altered to fix problem.

PROFESSIONAL EXPERIENCE

***Railcar Coupler Engineering Consultant*, Springfield, Ohio**

- Wrote and illustrated over 200 detailed procedures for calibration of freight railcar coupler manufacturing gauges for the Standard Coupler Manufacturers.
- Proofread and consulted on improvements in newest edition of The Gauge Book showing how to use coupler manufacturing gauges correctly.
- Trained workers at major commuter railroad about passenger railcar coupler maintenance.

***Product Engineer*, Buckeye Steel Castings Company**, Columbus, Ohio

- Coordinated three Interchange Meetings for the Standard Coupler Manufacturers.
- Reduced costs by assisting new vendors of old parts.
- Recognized by American Public Transit Association for providing primary effort in drafting the three APTA Tightlock Coupler specifications.

***Cylinder Engineering Manager*, Cascade Corporation**, Springfield, Ohio

- Orchestrated design and purchase of custom automated production testing machine.
- Led 4 person design and tooling group in team concept organizational structure.
- Coached and developed tool designers to also do product design and drafting.
- Supervised transition to AutoCAD drafting software.

***Engineering Manager*, United Hydraulics**, Hampton, Iowa

- Promoted to engineering manager of design engineering department, supervised seven technical and administrative staff responsible for product design.
- Ran department within budgets at least 2% smaller than prior year's expenditures.
- Completed 2 week Statistical Process Control seminar.

***Senior Designer*, FMC Crane & Excavator**, Cedar Rapids, Iowa

- Designed and tested hydraulic components for Link Belt® cranes and excavators.
- Used Geometric Dimensioning and Tolerancing extensively.
- Completed Weibull Distribution training for analyzing test results.

EDUCATION

Bachelor of Science, ***Agricultural Engineering***, University of Missouri-Columbia

Trained in **Pro/ENGINEER® Wildfire™** 3-D modeling and **Pro/MECHANICA Wildfire Structure/Thermal** finite element analysis in PTC certified classes