

Curriculum Vitae:

Ernst Schubert, P.E.

SUMMARY

Registered Professional Mechanical Engineer with over 30 years of experience in building construction, manufacturing, and firearms industries. Areas of expertise include all aspects of manufacturing including machine design, high pressure fluid system design, product design, firearm design, machining, welding and assembly of automated manufacturing equipment, Computer aided design and computer aided manufacturing, 3D printing, Finite element stress analysis (solid works), data acquisition system design, design of deep hole drilling and tooling of firearms, including heat treatment and finishing, verification testing and acceptance testing of machining methods such as water jet, barrel drilling/rifling/button rifling. Simulation testing and long term fatigue testing of firearms.

FIREARMS EXPERIENCE

E&R Industries, Inc. Pasco, WA 1990s

- Held Class 07 FFL
- Performed R&D including proprietary manufacturing processes development for muzzle- loading rifle barrels
 - Materials selection
 - Stress analysis
 - Specified ballistic pressure measurement equipment
 - Authored and performed testing for strength and weight optimization
 - Performed fatigue and low temperature testing
 - Analyzed data
 - Developed custom swaging tooling and machinery (button rifling) resulting in rifling process that did not require external twist input such as a sine bar of CNC.

Member of Washington Historical Gunmaker's Guild - Washington State 2017 - Present

- Active in research and reverse engineering of both designs and production techniques of firearms from the late 1600s to mid 1800s.
- Participated in numerous gatherings and formal classes on both rifle and pistol design and fabrication techniques ranging from kit assembly to scratch built firearms and components.

President of The Cascade Mountain Men, Issaquah, WA 2004 - Present

- Active muzzle loading firearms club
- 501c Non-profit organization
- Participate in monthly competitions
- Participate in organization and execution annual muzzle loader / frontier show

Other

- WA State Hunter Education Training and Safety Courses
- Testified before WA State Senate Committee regarding antique firearms law
- Lifelong hunter and firearms enthusiast performing own gunsmithing on own firearms (Modern and Blackpowder).
- Design of machinery and tooling for optimized deep hole drilling and reaming of firearms
- Heat treating and surface treating of ferrous and non-ferrous alloys of firearm components
- Active in hobby manufacture of muzzle-loading arms

- Utilizing period specific tooling and techniques
- Utilizing CNC and Manual machining equipment
- BSA Rifle Shooting Merit Badge Counselor.

PROFESSIONAL EXPERIENCE

Kent Engineering | Architectural Diagnostics (Jan. 2025 - present)

Senior Mechanical Engineer

Manage and lead work on legal and non-legal firearms cases utilizing a variety of testing and analysis techniques to determine material, operation and functional failure modes, to determine the root cause of incidents pertaining to firearms.

BLUE ORIGIN (2023 – 2024)

Sr. Manager, Mfg, Ops, Assy. and Production Environmental Testing

Managed team of Integration Engineers and lab technicians responsible for assembly of space vehicle mono and bio-propellant thrusters, thruster systems, fuel tanks and thruster component manufacturing utilizing proprietary chemical processes as well as providing support to advanced development projects relating to space vehicle component testing and assy. Interacted with teams across multiple sites in the US. Coordinated job hazard analysis and performed bi-weekly safety inspections across multiple sites. Developed and guided team career development plans and mentored staff. Managed a new environmental test team through its early growth and commissioning. Developed job descriptions to hire environmental test engineers and engineering technicians / machinists for advanced Advanced Manufacturing Research Team. Successfully lead effort to develop clear advancement guide for the entire team alleviating ambiguity in the process and boosting morale.

OMAX CORPORATION / HYPER THERM (2005 - 2023)

Senior Engineer/ Project Manager,

Developed new products and technologies with multi-disciplinary group of engineers for Abrasive Waterjet Machines and accessories targeted at a specific market with DFMA in mind. Interviewed, selected and supervised Interns, designers and temps. Gathered market information including customer interviews, developed and maintained a production schedule for prototype, technical staff and facilitated initial product launch. Designed, fabricated and tested prototypes. Conceived and developed original solutions to technical requirements including design activities, experimental design, and operational validation testing. Selected manufacturing methods for various designs. Developed manufacturing, assembly and installation procedures. Trained technical personnel in product manufacture, deployment, and maintenance. Engaged in development of cost savings and existing product improvement. Design of high-pressure components. Gave presentations to upper management and sales staff. Member of Intellectual Property Review Committee. Training included: Lean Project Management, Product Lifecycle, Lean Product Development, Geometric Dimensioning and Tolerancing, Workplace Safety, Patent training.

SKOFLO INDUSTRIES, INC. (2002 -2005)

Project Manager

Managed projects for chemical injection valves used in the subsea petroleum industry. Wrote proposals, negotiated contracts, set schedules and facilitated deliveries. Reviewed complex contracts and specifications and ensured compliance. Ensured compliance with import and export regulations. Wrote and managed testing procedures and setup test lab to ensure pre-delivery cleanliness standards were met which included specifying and procuring test equipment. Responsible for customer interfacing and reporting as well as dispute resolution.

FLOW INTERNATIONAL, INC. (1998 – 2002)

Senior Engineer/ Lab Manager, R&D

Senior mechanical engineer and laboratory manager for advanced applications R & D group in ultra high- pressure water jet systems. Developed new equipment and technologies based on market requirements or technology advancements. Supervised Lab 2 to 4 technicians and designers on development and implementation of projects. Managed and conducted HAZMAT training and PPE plans for special projects. Wrote proposals, estimated project cost and staffing requirements and tracked budgets for projects. Wrote technical reports and gave presentations. Conducted annual reviews on technicians. Produced detailed drawings and worked with vendors and R&D machine shop.

BOEING COMMERCIAL AIRCRAFT COMPANY (1997 – 1998)

Specialist Engineer, Interiors

Produced design specifications and regulation compliance documentation for aircraft equipment. Resolved issues between equipment supplier and BCAG, field checked equipment fit-up on existing aircraft. Gathered technical data and made presentations to division leads to accommodate changes and modifications in designs. Inventory reduction / LEAN activities to cross utilize similar components.

MORGEN DESIGN, INC. (1996 – 1997)

Engineering Manager

Managed engineering division consisting of 12 engineers, designers and sales staff. Evaluated company's business practices and instigated recovery plan including modified marketing strategies and fabrication assembly practices. Assigned projects to engineers who managed designers and technicians. Developed designs and production drawings for new product based on conceptual ideas and financial goals. Redesigned load-handling equipment for outside clients including in-depth stress analysis of structures. Met with new clients to gather technical information on project requirements and then provided technical guidance to engineering group for design development. Revised and implemented CAD standards to become more efficient and protect data.

MCE/ICF KAISER INTERNATIONAL (1993 – 1996)

Senior Design Engineer

Designed and specified equipment for use in radioactive, flammable atmospheres of nuclear facility. Designed and coordinated fabrication of specialized equipment used in radioactive waste transfers. Designed portable radiation shielding system. Provided support to fabrication divisions and technical direction to field personnel. Established project environmental conditions based on numerous complex process and mapping documents. Performed and verified design and analysis calculations. Coordinated design efforts for over-ground double-containment transfer piping. Maintained compliance with regulatory requirements governing designs and operation activities. Coordinated survey for placement of equipment in facilities. Planned and conducted experiments to gather engineering data. Identified critical information databases on site, evaluated and advised owners regarding data management practices and procedures.

PROFESSIONAL REGISTRATION & CERTIFICATION

Registered Professional Engineer, State of Washington, #32869 (1995-Present)

EDUCATION & TRAINING

BS Mechanical Engineering, Washington State University, 1989

PUBLICATIONS & PRESENTATIONS

Advanced Abrasive Waterjet for Multimode Machining – IntechOpen

Micro Abrasive-Waterjet Technology – IntechOpen

Best Paper Award at the 24th International Conference on Water Jetting 2018

Recirculation of wet abrasive material in abrasive waterjet systems and related technology. Recirculation of wet abrasive material in abrasive waterjet systems and related technology; US 11872670; Issued Jan 16, 2024US

Abrasive-delivery apparatuses for use with abrasive materials in abrasive-jet systems and related apparatuses, systems, and methods; US 9636799

Measuring abrasive flow rates in a conduit measuring abrasive flow rates in a conduit; Us 2021004661

Particle delivery apparatuses including control junctions for use in abrasive-jet systems and related apparatuses, systems, and methods; US 9492908

Particle-delivery in abrasive-jet systems; US 9138863

Piercing and/or cutting devices for abrasive waterjet systems and associated systems and methods; US 8821213

Recirculation of wet abrasive material in abrasive waterjet systems and related technology; US 11577366

Systems and methods for fluidizing an abrasive material; US 9283656

Systems for abrasive jet piercing and associated methods; US 9827649

PATENTS

US 9138863B2, US8821213B2, US9636799B2, US 20180161958A1, US201402131501A1, 20120085211A1, US9283656B2, US9492908B2 + Numerous applications.