

VLADISLAV OREKHOV

Senior Mechanical Design Engineer | R&D, Product Development & Productionization

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PROFESSIONAL SUMMARY

Senior mechanical design engineer and hands-on R&D lead with 12+ years of experience turning short, incomplete, or non-technical briefs into defined requirements and physical products, from concept through CAD, prototypes, production documentation, and manufacturing support. Strong background in structures, mechanisms, electromechanical integration, sheet metal, welded assemblies, hydraulics, thermal/airflow packaging, DFM/DFA, and prototype assembly support. Designed the majority of the mechanical hardware across an EV charging product family from 5 to 480 kW, alongside industrial pumping systems, trailers, agricultural machinery, and custom production equipment. Advanced SolidWorks user with direct shop-floor experience and an earlier software-development background that supports automation and structured problem solving.

CORE EXPERTISE

Requirements definition from incomplete briefs • Mechanical design & system integration • SolidWorks / SolidWorks Simulation • Structures, mechanisms & actuators • Sheet metal, weldments & enclosures • DFM/DFA • Prototype assembly & mechanical issue resolution • Production drawings & tolerancing • Reverse engineering • Hydraulics • Thermal/airflow integration • Manufacturing support: laser cutting, CNC bending, welding, machining, tube laser, 3D printing

PROFESSIONAL EXPERIENCE

VITA TRUCK — Independent Mechanical Design Engineer — Petroleum Loading Systems

January 2026 – Present | Self-employed contract engagement

- Develop mechanical equipment and assemblies for petroleum-product loading and transfer systems for a manufacturing contractor, from requirements clarification and concept development through production documentation and design support.
- Work directly with manufacturing on interfaces, materials, serviceability, assembly constraints, and practical design changes during fabrication.

Electricus LLC — Head of Engineering Development / Hands-on Mechanical R&D Lead

January 2020 – Present | Official employment; one mechanical designer reporting

- Lead the mechanical development of an EV charging product family spanning 5–480 kW. Frequently start from only a short brief rather than a formal technical specification, define the practical requirements, and carry the work through concepts, prototypes, production documentation, and manufacturing support.
- Owned the system-level mechanical architecture and most detailed design of the current 240–480 kW platform, integrating the structural frame, service access, power-module packaging, airflow paths, fan modules, motorized louvers with linear actuators, sealing, cable routing, and lifting/service points. Supervised limited supporting work on approximately one quarter of the enclosure detailing, part of the drip tray, and production drawings.
- Designed sheet-metal and additive-manufactured enclosures, compact charging microstations, internal component layouts, mounting and cable-management systems, and mechanical charging-connector hardware, including a completed GB/T AC unit, ongoing GB/T DC development, and earlier Type 2 and CCS connector generations.
- Performed targeted static calculations and SolidWorks Simulation checks for critical or uncertain load cases; supported prototype assembly and resolved mechanical fit, alignment, sealing, access, cable-routing, and serviceability issues.
- Worked directly with laser cutting, CNC bending, welding, machining, and 3D printing, improving cost, repeatability, assembly, and maintainability as designs moved toward production.

PROFESSIONAL EXPERIENCE — CONTINUED

Alaska Trailers — Mechanical Design Engineer — Trailers & Special-Purpose Equipment

October 2021 – Present | Concurrent contract / project-based role

- Designed a broad portfolio of utility and special-purpose trailers, including a recent three-model family developed from concept to serial production and an earlier modular trailer validated off-road with an 820 kg load.
- Optimized welded tubular and sheet-metal structures for tube-laser cutting, CNC bending, welding, and repeatable series assembly; prepared Tubest models, flat patterns, DXF files, and production-ready documentation.
- Designed and supported manufacture of a custom hydraulic tube-bending machine, including structural development and hydraulic-cylinder validation in SolidWorks Simulation.
- Developed functional 3D-printed plain-bearing bushings for trailer pivots, reducing part complexity and simplifying production; worked directly with manufacturing to resolve assembly issues and introduce new processes.

Mighty Buildings — Moscow R&D Project — Contract Mechanical Design Engineer

September 2021 – May 2022 | Independent contractor under a civil-law agreement

- Designed a large-format clamping and holding fixture for a robot-assisted manufacturing cell, including the structural frame, contact geometry, local mechanisms, and production documentation. Prepared fabrication drawings used for a production transfer to Monterrey, Mexico, and for a second factory in Oakland, California, covering laser-cut sheet metal, press-brake bending, and welded assemblies; maintained metric and inch-based variants with slightly different component sets.
- Developed structural frames, mechanical mounting nodes, and internal support layouts for modular manufacturing equipment in SolidWorks; coordinated design iterations with the Moscow-based engineering team.

SpecStroiMashina — Mechanical Design Engineer

July 2017 – July 2020 | Remote with regular plant visits

- Executed full-cycle reverse engineering and clean-sheet redesign of a heavy-duty grain seeder, including the chassis, drawbar, hoppers, mechanical kinematics, custom seeding mechanisms, hubs, shaft calculations, hydraulic layout, and cylinder selection.
- Developed mobile diesel pump units for contaminated water with solids up to 74 mm, including integrated 156/300 L tanks, low-center-of-mass layouts, engine-pump interfaces, vibration/resonance checks, and multiple production configurations.
- Designed diesel-generator equipment, protective enclosures, trailers up to 3,500 kg, and a complete industrial exhaust and filtration system for plasma cutting with automated pulse-jet filter regeneration.
- Provided designer supervision, supplier and equipment selection, manufacturing documentation, and production-launch support.

EARLIER EXPERIENCE

Alaska Trailers — CAD Designer (2014–2017): utility-trailer chassis, frames, sheet-metal panels, production drawings. **Sky Technology — CAD Designer (2015–2016):** CNC-machine design and upgrades, sheet metal, gears, weldments, and extruded profiles. **Engineering software and data automation (2008–2015):** Delphi, Firebird SQL, APIs, MS Office automation, large technical-data workflows, and internal engineering-document checks.

EDUCATION & ADDITIONAL INFORMATION

Siberian Federal University

Master of Engineering (MEng), Technology, Equipment and Automation of Machine-Building Industries, 2011

Siberian Federal University

Professional Retraining Diploma — Technical English Translation, 2020

Tools

SolidWorks, SolidWorks Simulation, Mathcad, Tubest, AutoCAD/Kompas (working familiarity)

Languages

Russian — native

English — strong technical reading and writing; conversational speaking currently being refreshed