



www.amm.ba

info@amm.ba



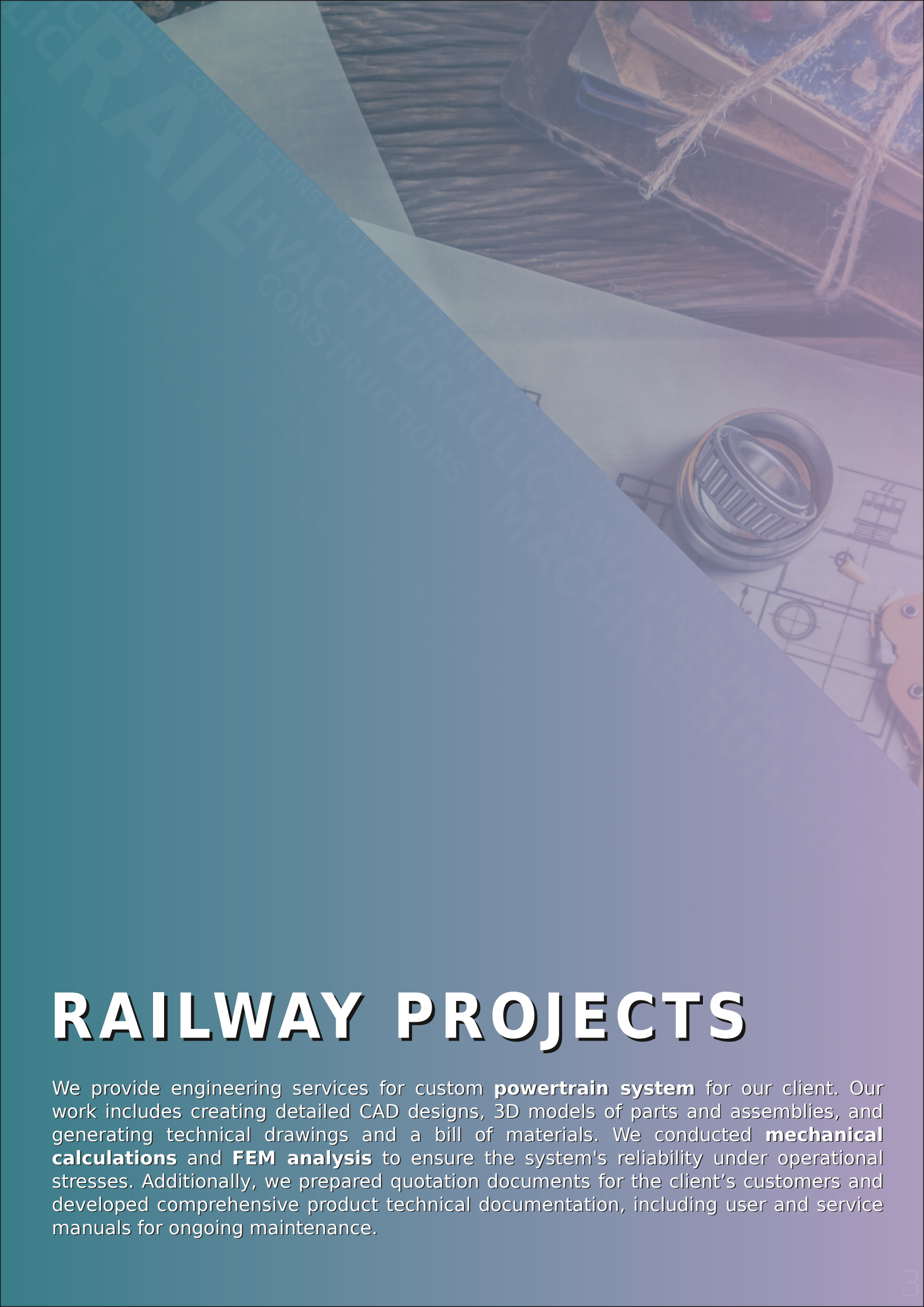
EXPLORE OUR PAST PROJECTS!

Our Scope of Work

- ▶ **CAD Design**
- ▶ **Technical Drawings and Bill of Materials (BOM)**
- ▶ **Engineering Calculations and Finite Element Method (FEM) Analysis** (Conducted structural and mechanical simulations to validate load-bearing capacity, optimize materials, and ensure roadworthiness)
- ▶ **Preparation of Quotation Documents**
- ▶ **Technical Documentation** (Developed extensive product technical information, including user and service manuals, to guide end-users and service personnel in the effective operation and maintenance of the powertrain system)
- ▶ **Preparation of Protocols for Dimensional Testing**
- ▶ **Plumbing and Electrical System Solutions** (Designed and optimized plumbing and electrical layouts, addressing constraints related to compact space and mobility)
- ▶ **Design Optimization:** Assisted in refining design elements to improve **aesthetics, functionality, and compliance** with industry standards.
- ▶ **Reverse Engineering:** Conducted in-depth analysis of **existing cylinder designs** to identify areas for optimization and cost reduction.
- ▶ **Manufacturing Process Optimization:** Assisted in refining designs to **simplify production**, reduce material waste, and improve assembly efficiency.

Tools/Software Used

- ▶ **Design and Modeling:** Utilized **CATIA V5** and **SolidWorks** for creating designs, 3D models and technical drawings.
- ▶ **Finite Element Analysis:** Utilized **CATIA V5 FEM Analysis Module** to conduct engineering calculations, analyses and simulations. **Structural & Mechanical Analysis: SolidWorks FEM tools** for stress, strain, and durability assessments.
- ▶ **Documentation and Management:** Used **SAP** for efficient documentation management and preparation of quotation documents. **Affinity Designer** and **Inkscape** for creating user and service manuals, ensuring precise illustrations.
- ▶ **Documentation & Planning:** Used **technical drawing tools** to generate production-ready blueprints and specifications.



RAILWAY PROJECTS

We provide engineering services for custom **powertrain system** for our client. Our work includes creating detailed CAD designs, 3D models of parts and assemblies, and generating technical drawings and a bill of materials. We conducted **mechanical calculations** and **FEM analysis** to ensure the system's reliability under operational stresses. Additionally, we prepared quotation documents for the client's customers and developed comprehensive product technical documentation, including user and service manuals for ongoing maintenance.



VOLKERRAIL



MTU



FLIRT



FINNLAND



**SBB
CARGO**



EMU LKA 60WE



MPPR



**BEMU
HŽ**



**REGIO
SHUTTLE H2**



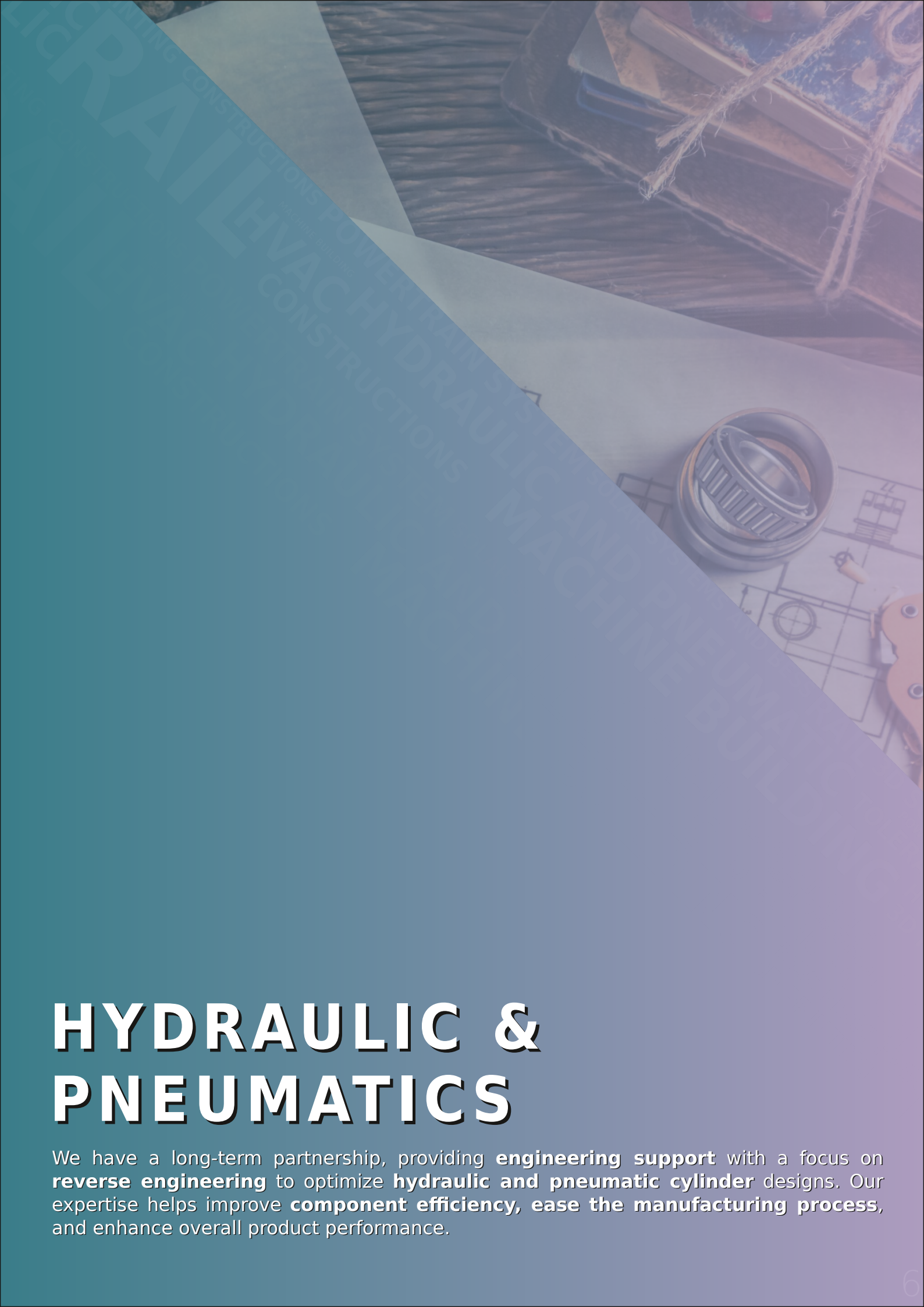
**US MBTA
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DMU**

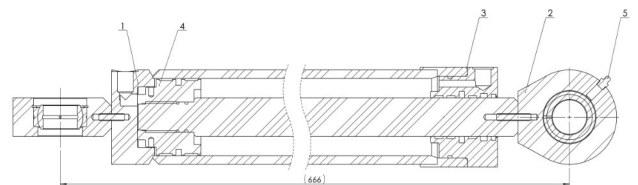
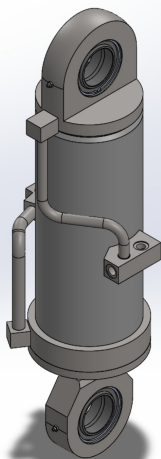


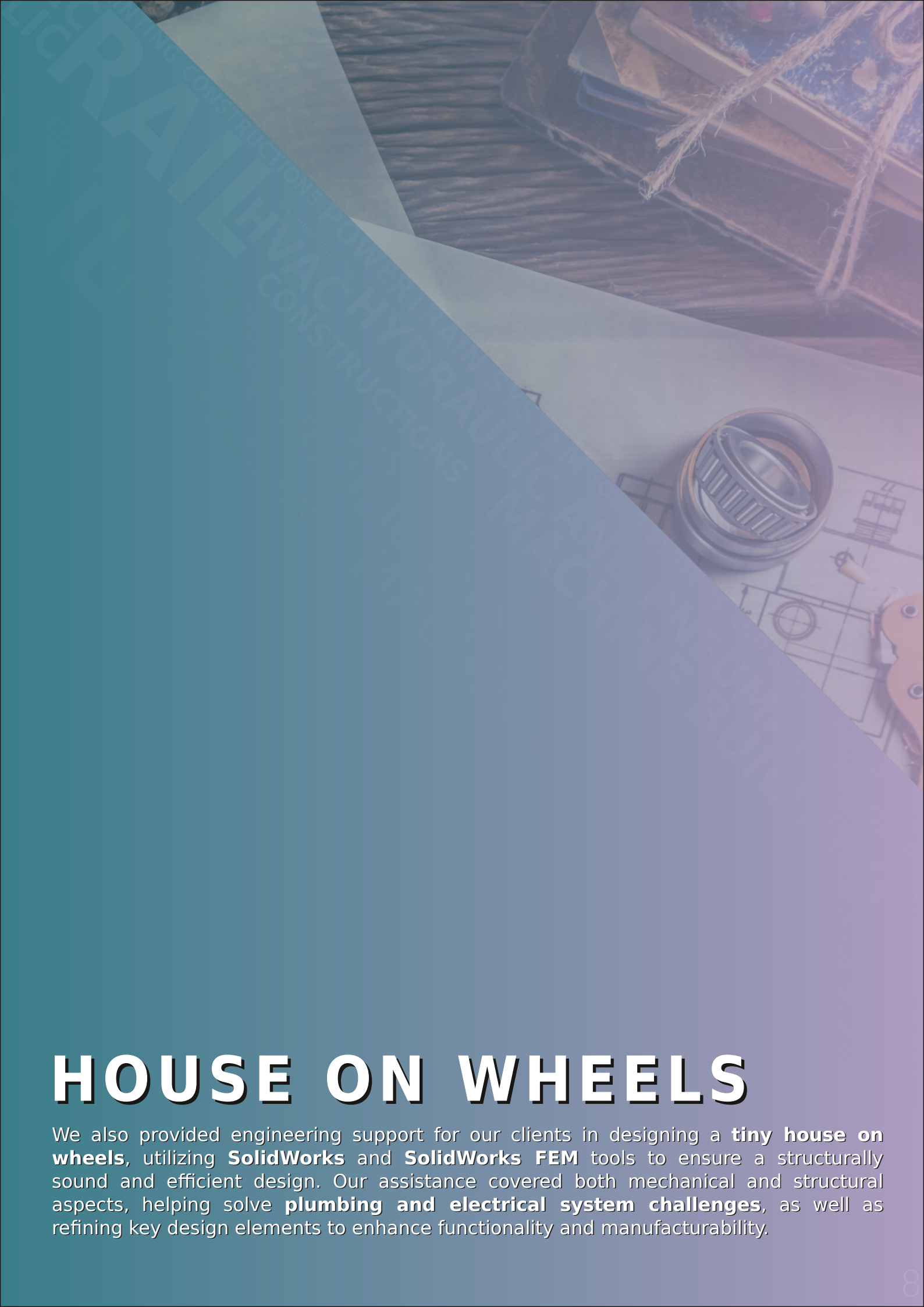
PILATUSBAHN



HYDRAULIC & PNEUMATICS

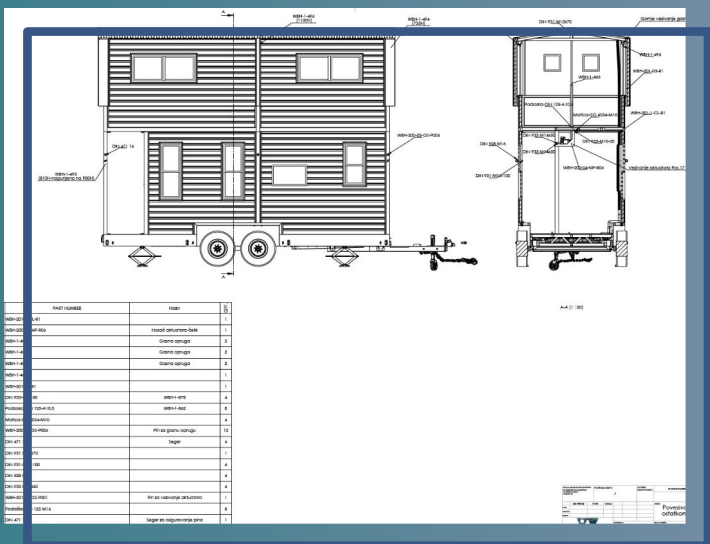
We have a long-term partnership, providing **engineering support** with a focus on **reverse engineering** to optimize **hydraulic and pneumatic cylinder** designs. Our expertise helps improve **component efficiency**, **ease the manufacturing process**, and enhance overall product performance.

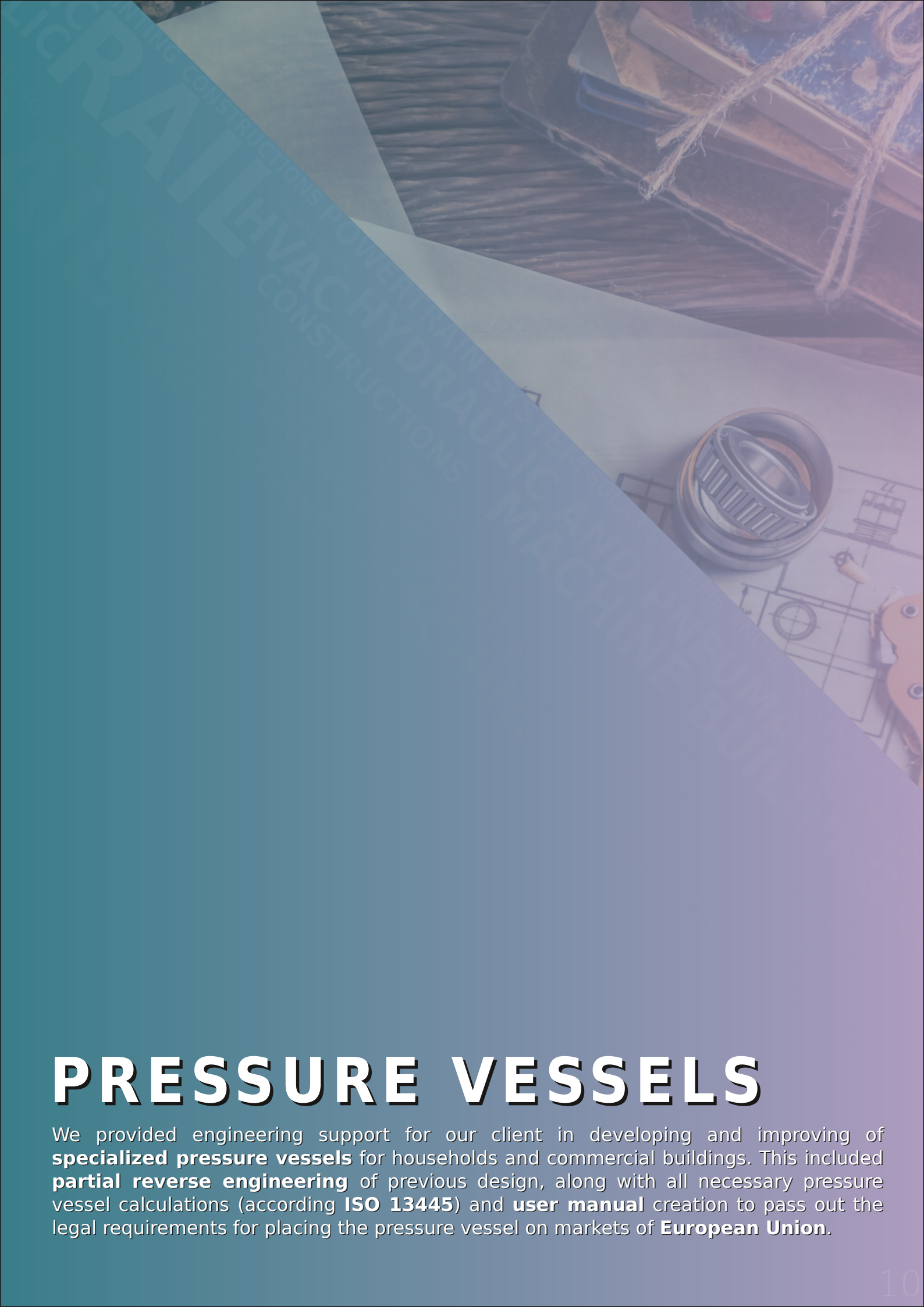




HOUSE ON WHEELS

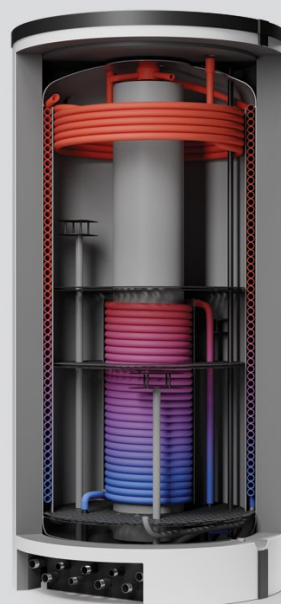
We also provided engineering support for our clients in designing a **tiny house on wheels**, utilizing **SolidWorks** and **SolidWorks FEM** tools to ensure a structurally sound and efficient design. Our assistance covered both mechanical and structural aspects, helping solve **plumbing and electrical system challenges**, as well as refining key design elements to enhance functionality and manufacturability.





PRESSURE VESSELS

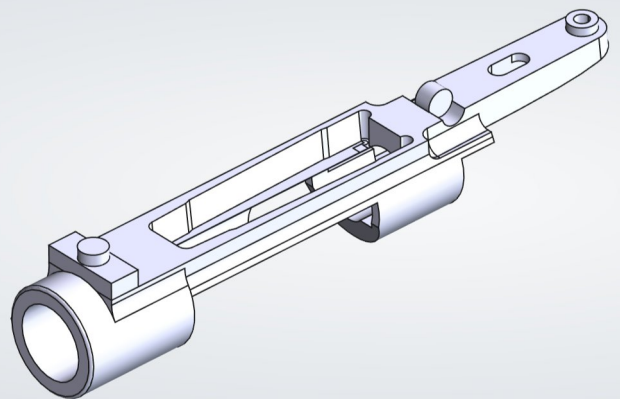
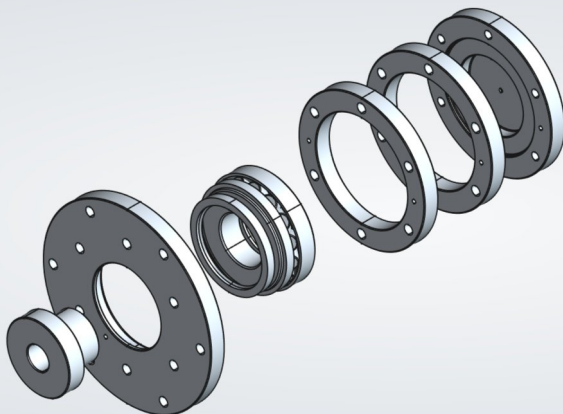
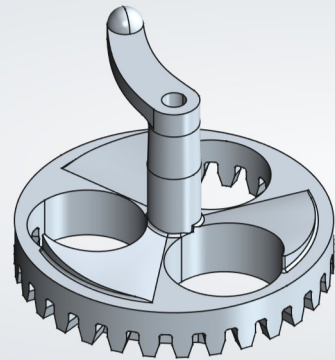
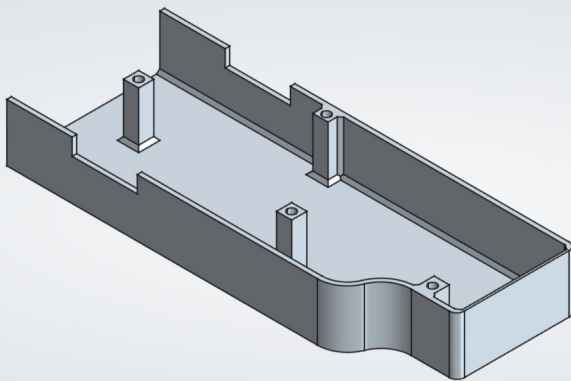
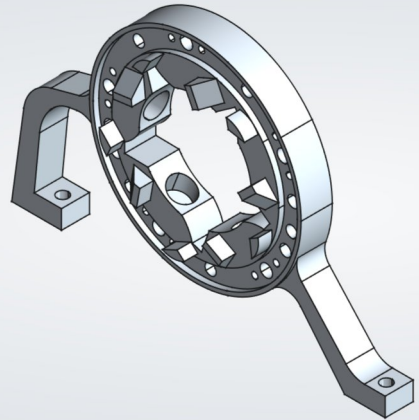
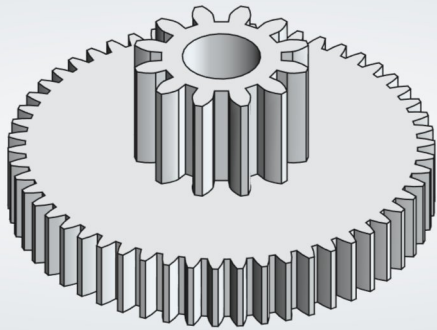
We provided engineering support for our client in developing and improving of **specialized pressure vessels** for households and commercial buildings. This included **partial reverse engineering** of previous design, along with all necessary pressure vessel calculations (according **ISO 13445**) and **user manual** creation to pass out the legal requirements for placing the pressure vessel on markets of **European Union**.





OTHER ENDEAVOURS

We offer innovative solutions to tackle your product design challenges. Our team can develop and refine your concept, creating a precise **3D model of the prototype**. Using our advanced **3D printing technology**, we bring your design to life, allowing you to test its functionality and make necessary improvements before full-scale production.





We provide you with **CAD support** services in the area of mechanical engineering!

3D DIMENSIONING & DRAFTING

We provide 3D drafting services for parts and assemblies, ensuring that designs meet the highest standards for cost-effectiveness and quality. Whether you're working on machine parts or complex construction assemblies, our precision and attention to detail ensure optimal results.

3D DESIGN & CONSTRUCTION

Our team specializes in 3D modeling for a wide range of applications, including machine design, electromotors, rail industry components, and hydraulic/pneumatic systems. With expertise in machine building and system integration, we deliver robust and innovative designs tailored to your specific needs.

MECHANICAL CALCULATIONS

We perform mechanical calculations, including stress, pressure, and load analysis, following EN/ISO standards. Using advanced Finite Element Method (FEM) simulations, we ensure that your designs meet safety and performance requirements for demanding applications.

RAPID PROTOTYPING

With our 3D printers and scanners, we can quickly produce prototypes, allowing you to test and iterate your designs with speed and accuracy. This process helps to reduce lead times and brings your ideas to life faster.

HYDRAULIC AND PNEUMATIC SYSTEM DESIGN

Our team designs custom pneumatic and hydraulic systems, offering full automation and programming services. Whether you're developing complex machinery or industrial systems, we can help!

PROJECT MANAGEMENT & DATA SECURITY

Your project is treated with the highest level of confidentiality. We prioritize security and are open to signing NDAs (Non-Disclosure Agreements) to ensure your sensitive information remains protected. Rest assured, your data is in safe hands throughout the project lifecycle.