



ENGINEERING DESIGN, SIMULATION AND MANUFACTURING SERVICES

Engineering Service Catalog

FEAmax LLC provides practical engineering support for product teams that need CAD design, finite element analysis, CFD simulation, Moldflow analysis, manufacturing support and global sourcing coordination.

Design

CAD, drafting, reverse engineering and DFM review.

Simulation

FEA, CFD, thermal, fatigue, impact and Moldflow analysis.

Manufacturing

Prototype, tooling, production sourcing and technical coordination.

Integrated engineering support from concept to production.

FEAmax supports product development teams by connecting design, simulation, testing and manufacturing decisions. The objective is to reduce technical risk, improve product quality and help customers move from concept review to supplier-ready documentation.

Engagements can be focused tasks, such as one FEA study or drawing update, or broader programs that combine CAD, analysis, prototyping and manufacturing coordination.

Common application fields

Aerospace and automotive	Energy and industrial equipment
Consumer products	Medical and laboratory products
Manufacturing and tooling	Research and product development

1 Review drawings, CAD files, photos, loads, materials and project objectives.	2 Define scope, assumptions, deliverables, schedule and service path.	3 Perform CAD, simulation, testing review or manufacturing coordination.	4 Deliver practical reports, files and next-step recommendations.
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Typical project deliverables

- 3D CAD files and 2D manufacturing drawings
- Simulation plots, assumptions, conclusions and engineering reports
- Manufacturing RFQ packages and supplier communication support
- Testing plans, correlation notes and validation summaries

Design and simulation capabilities

CAD Design and Drafting

3D CAD modeling, product design, reverse engineering, assembly design, 2D drawings and design-for-manufacturing review.

- 3D solid and surface modeling
- Product and assembly design
- Manufacturing drawings and tolerance documentation
- Reverse engineering from samples or scan data

Finite Element Analysis (FEA)

Structural, thermal, fatigue, vibration, buckling, impact and nonlinear simulation to reduce design risk before tooling or production.

- Linear and nonlinear structural analysis
- Thermal and thermo-mechanical studies
- Fatigue, modal and vibration review
- Engineering reports with practical recommendations

Computational Fluid Dynamics (CFD)

Fluid flow and heat transfer simulation for pressure drop, cooling, thermal management and product performance decisions.

- Internal and external flow simulation
- Pressure drop and flow balancing
- Conjugate heat transfer
- Fan, duct, manifold, pipe and enclosure analysis

Moldflow Analysis

Injection molding simulation for plastic part filling, packing, cooling, shrinkage, warpage and tooling risk reduction.

- Fill, pack and cooling simulation
- Gate and runner review
- Weld line, air trap and sink mark evaluation
- Warpage and shrinkage prediction

Support for practical execution.

Manufacturing and Global Sourcing

Prototype, tooling, precision manufacturing and supplier coordination support that connects engineering requirements with production execution.

- Prototype and low-volume production
- CNC, casting, sheet metal, stamping and injection molding support
- Supplier sourcing and technical communication
- Inspection and manufacturing documentation

Lab Test and Validation Support

Physical test planning, simulation correlation and failure investigation support for validation and engineering decision-making.

- Test planning and fixture review
- Load, vibration, thermal and performance testing support
- Data interpretation and reporting
- Correlation between test and simulation

For CAD and manufacturing projects

- 2D drawings and 3D files if available
- Material, finish, quantity and tolerance targets
- Photos or samples for reverse engineering
- Known manufacturing process or supplier constraints

For simulation projects

- CAD geometry or simplified analysis model
- Material properties and operating environment
- Loads, constraints, flow rates, pressure or temperature conditions
- Design criteria, failure concern or comparison objective

Start a project

Send drawings, CAD files, photos or a short engineering brief. FEAmix can review the requirements and recommend a practical design, simulation, testing or manufacturing path.

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