

TIMESTEP

Timestep is a leader in advanced finite element analysis (FEA), engineering design and metrology services for a broad range of businesses.

Our name, Timestep, is drawn from technical terminology used in dynamic FEA and identifies with our core business.

It describes the time increment in a dynamic simulation. In a philosophical sense, the timestep links to our purpose: **to create change, focus on the future and stay ahead of the crowd.**

Timestep employs outstanding technical staff with strong experience, postgraduate engineering qualifications and professional registrations in multiple jurisdictions. Our core professional engineers each have more than ten years of FEA experience working on a diverse range of simulation projects.

WHAT WE HAVE DONE

- Timestep has completed projects in multiple industries: renewable energy, conventional energy, defence, space, automotive, electronics, consumer goods, construction, and demolition.
- Our capabilities are suitable to companies and organisations involved in engineering, technology and science in almost every industry.
- Our clients include some of Australia's foremost academic and industrial research organisations.
- Our engineers have a diverse and adaptable range of capabilities.
- We have a high client satisfaction rate and a growing list of loyal clients.

FEA

This is our core business, and we offer a variety of capabilities in this area. **Our experience includes:**

- nonlinear explicit-dynamics
- failure modelling
- landmine & IED blast simulation
- ballistics simulation
- crash simulation
- simulation cases with large deformations
- complex assemblies with contact
- prestressed components
- joints (fasteners, adhesives, welds)
- static structural simulation
- dynamic and quasistatic simulation
- modal analysis
- pressure vessel analysis
- lifting arrangements and equipment

ENGINEERING DESIGN

We have engineers who are registered in multiple jurisdictions allowing us to provide professional engineering services across a large geographical area. **Our design experience includes:**

- mechanical equipment and structures to various Australian Standards and codes
- mechanical equipment and structures from first principles
- materials testing and selection
- prototyping and advanced manufacturing processes
- physical / destructive testing
- lifting equipment
- high temperature equipment and insulation
- solar concentrating optics
- high temperature optical devices

METROLOGY

We have advanced capabilities for high-precision measurement of objects and structures ranging from medium to very large sizes. **Our experience includes:**

- Measurement of assembly jig structures up to 500 m² with 200 µm precision
- Measurement of 1 m² factory moulds with 7 µm precision
- Design of photogrammetric quality control systems for factories

OUR TOOLS

We use class-leading software from the world's best developers.

Developer	Product	Used for
ANSYS LST	LS-Dyna	FEA and Multiphysics simulation
ANSYS LST	LS-Dyna	LS-Dyna pre- and post-processing
Mathworks	Matlab	Mathematical computing and programming
Python	Python	Mathematical computing and programming
Dassault Systèmes	Solidworks	Computer aided drawing, point cloud operations
Geometric Software	VMS	High precision photogrammetric measurement

COMPUTATIONAL HARDWARE

Timestep has a commercial agreement with the National Computational Infrastructure to run our advanced numerical simulations on the Gadi Supercomputer. This arrangement allows us to undertake highly detailed modelling.


Do you need to solve a complex engineering problem?


Contact Timestep to find out how we can accelerate your progress and provide new insights through numerical simulation, design and metrology services.

Contact us



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