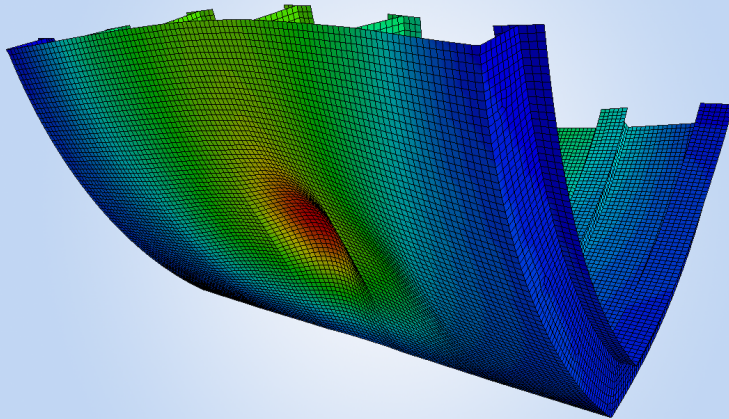


STRUCTURAL FINITE ELEMENT CAPABILITIES



Vehicle Hull Structure Deformation Under Blast Loading

ABOUT SURVICE

Specializing in combat system survivability and weapon system effectiveness, the SURVICE Engineering Company has provided the Department of Defense and other Government and industry enterprises with innovative systems engineering solutions and services for nearly 30 years.

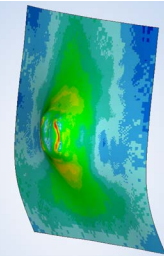
Our integrated technical expertise includes a wide range of nationally recognized disciplines:

- **Systems Engineering** – supporting all phases of systems research development, testing, and evaluation.

- **Applied Technology Solutions** – developing customized products and services to meet customer needs in the areas of Dimensional Metrology and M&S (methodology and code development).

ASSESSING THE STRUCTURAL INTEGRITY OF DESIGNS

SURVICE specializes in the survivability and effectiveness of land, air, and sea vehicle systems used by the Defense industry. Finite element models are built to demonstrate the ability of a system, from its individual components to its combined assemblies,



Wall Response Under Projectile Impact

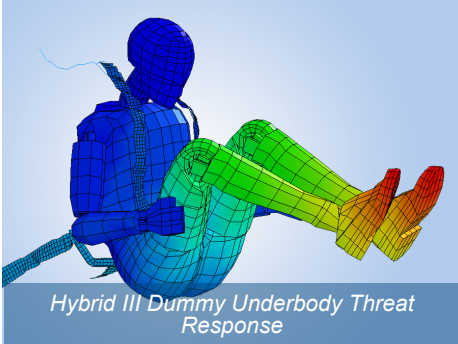
to withstand operational loads and protect occupants and critical cargo, per customer specifications.

STUDYING STATIC AND DYNAMIC STRUCTURAL RESPONSE

SURVICE analysts provide high-fidelity, transient, nonlinear structural response predictions. Typical responses include graphical and contour plots of stress, force, displacement, velocity, acceleration, and thermal distributions under any load scenario. Finite element analyses demonstrate the system performance to serve as a baseline for test data comparison.

EVALUATING CUSTOMER DESIGNS

Our team of engineers possess the knowledge, experience, and tools to develop an ideal set of design variables to meet desired specifications.



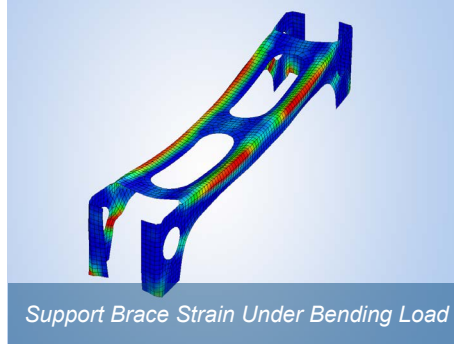
INCORPORATING INDUSTRY-LEADING TOOLS

Using HyperWorks and LS-DYNA software, SURVICE offers superior control, accuracy, and speed to produce finite element solutions for our customers.

LEVERAGING UNMATCHED EXPERTISE AND ESTABLISHED RELATIONSHIPS

SURVICE is actively involved in the analytical and testing arenas of blast characterization and effects. Conveniently located near Aberdeen Proving Ground and Aberdeen Test Center, SURVICE has long-standing relationships with both organizations.

SURVICE possesses unmatched capabilities for collaboration, verification, and full-scope, cutting-edge comprehension of system survivability.



Through our strategic partnership with UTRON, SURVICE has access to a private, secure 320 acre test range in Ashton, WV. The facility is Joint Test Board (JTB) Tier II accredited and can support large caliber ballistic testing and explosive/blast experimentation requirements.

INTEGRATING FINITE ELEMENT CAPABILITIES WITH SURVICE'S OTHER CAPABILITIES

SURVICE's full-service Metrology Center provides innovative, high-precision dimensional metrology, 3-D modeling, and metrology application development services. When accurate, detailed geometry of a system or component does not exist, we leverage our reverse engineering capabilities to rapidly create detailed 3-D CAD models for FEA reference material.

FEATURED CAPABILITIES

BLAST EFFECTS

FULL VEHICLE MODELING

HYBRID III DUMMIES

RESTRAINT/SEAT SYSTEMS

ADVANCED MATERIALS

WELDS & FASTENERS

IMPACT & PENETRATION

**VIBRATION & FREQUENCY
RESPONSE**

FATIGUE

BUCKLING

THERMAL EFFECTS

**CAD HANDLING
(INCLUDING BRL-CAD
FORMAT)**