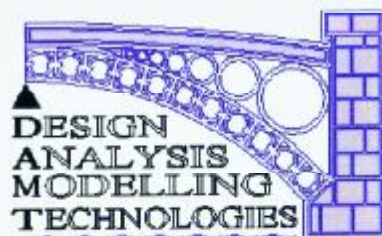


DAMT Ltd

FE Consultancy and Training Services



Consultancy and Products to Bridge the Engineering Analysis Gap

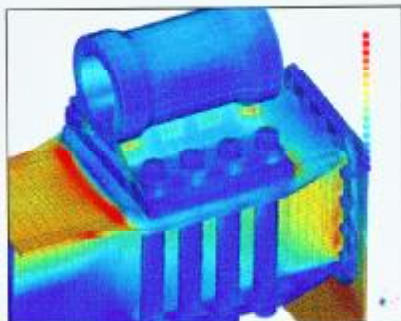
DAMT Ltd specialises in high-quality finite element model building, analysis consultancy and training. All projects are carried out by highly trained staff principally using the ROSHAZ and ABAQUS systems.

Bob Johnson is a NAFEMS registered analyst and has been involved in FE-based consultancy since 1981 and Tony Ing has been in the FE and modelling industry since 1976. Both are highly innovative and fully committed to providing a first class consultancy service at fully competitive rates.



DAMT Ltd can supply a wide range of services from a simple one day peer review, through meshing-only projects, all the way to complex FEA simulations. All work is accompanied by a detailed report giving recommendations and ideas in order to improve your product or process. Analysis projects are carried out under a highly-developed NAFEMS QSS procedure, which ensures quality, timeliness and consistency.

DAMT Ltd uses both Unix and Windows workstations for technical computing. These machines provide reliability and redundancy to ensure that projects are always completed on time in the toughest circumstances.



Issue 8

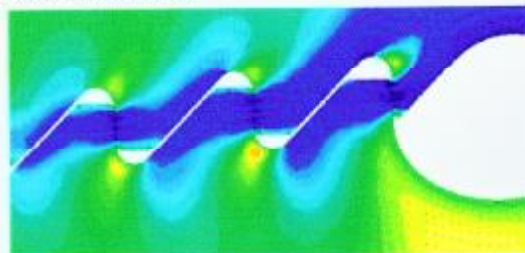
DAMT Ltd is particularly interested in problem solving. Whenever you are in difficulty with your work and need a new approach or opinion we would be very happy to help or advise. We pride ourselves on the level of engineering intuition, common sense and innovation we can offer.

DAMT Ltd is also committed to training and education. We run on site ROSHAZ training courses and workshops, have developed and presented the NAFEMS 'Basics of Stress Analysis' and 'Practical Introduction to FEA' courses and develop other courses as requested.

Companies using our services recently include:

APPH: AWE: BEC: Benninghoven: Berg Energy Products: Caterpillar: CIT: DePuy Int: Dstl Farnborough: Dstl Fort Halstead: Electrodrives: Gripple: Heil Trailer: IMI Norgren: Meritor: JW Froehlich: London Marine: Messier Dowty: Metronet Rail SSL: NAFEMS: Nash Mynard: NNC: Oxford Magnet Technology: POWERGEN: SGS: The Strong Group: Thales Optronics: Timken: TWI: Valeo: Wyman-Gordon and Xaar Technology.

A comprehensive list of completed projects can be supplied on request.



Images supplied courtesy of NAFEMS: Benninghoven and Berg Energy Products. ABAQUS is a trademark of ABAQUS Inc and ROSHAZ is a trademark of ROSHAZ software.

For more information on DAMT Ltd FE Consultancy Services please contact:

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MK16 9AT email: bj@tickford-cons.demon.co.uk

DAMT Ltd

ROSHAZ Products and Services



Consultancy and Products to Bridge the Engineering Analysis Gap

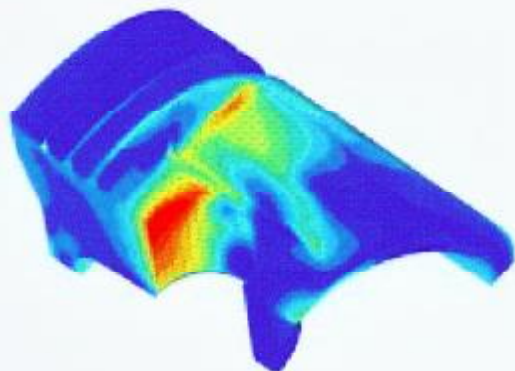
ROSHAZ

**Finite Element Analysis
with the
STRESS on REALITY**

A new **FEA** suite developed and supported by highly experienced engineers in the UK for any Windows 32 bit OS

DAMT Ltd has been a ROSHAZ distributor since 2003 and provides end-user licences, front line support and training.

These activities are supported by highly trained staff with more than 50 years of modelling and analysis experience. ROSHAZ is also used extensively for the DAMT FE Consultancy services.



The availability and ease of use of CAD embedded FEA has unfortunately opened the door for ill thought out and badly defined analyses to become commonplace. Many users lack knowledge of the fundamentals necessary for a meaningful analysis. A load one end and clamp the other end approach has become the norm by analysts who fail to see the fallacy of assuming everything is a cantilever. Simply swap the loaded and clamped ends to see a different set of results!

A return to the well-proven techniques used by stressmen before computers is long overdue. ROSHAZ aims to redress the balance by enabling the analyst to make use of best practices within their FE models.

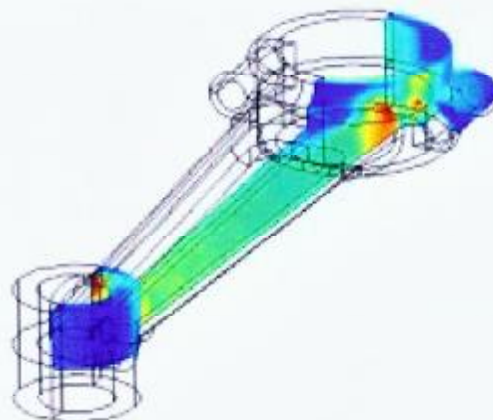
Consider a free body diagram of forces acting on a part: the sum load in any direction is zero, as are the moments taken about any direction. This is the basis for a Roshaz analysis. By ensuring a fully balanced

load condition, a minimal set of 3-2-1 supports can then be applied. Correctly done, the supports prevent rigid body motions without affecting results.

Loads are applied as variable pressure distributions using either built in empirical formulas that mimic contact pressures between parts in assemblies or with a user supplied equation to describe loadings obtained from specialist knowledge.

False results generated by the use of point loading, rigid body elements and unnecessary constraint equations do not happen with ROSHAZ.

ROSHAZ is uniquely capable in the way that it enables the user to apply loads as realistic variable pressure distributions from a simple force and moment input. Running totals of forces and moments applied, make it easy to create a fully load balanced model with minimal supports, thus eliminating the need for unrealistic and potentially erroneous restraints which often produce false results.

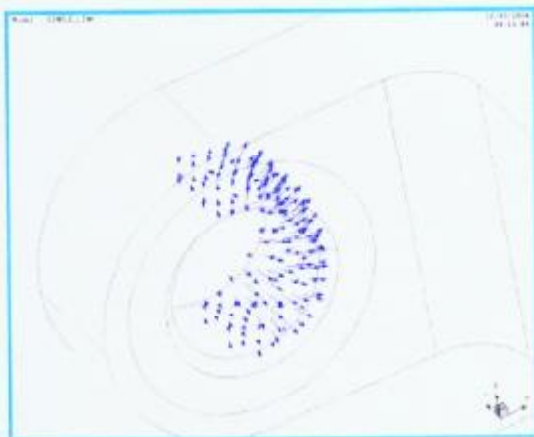
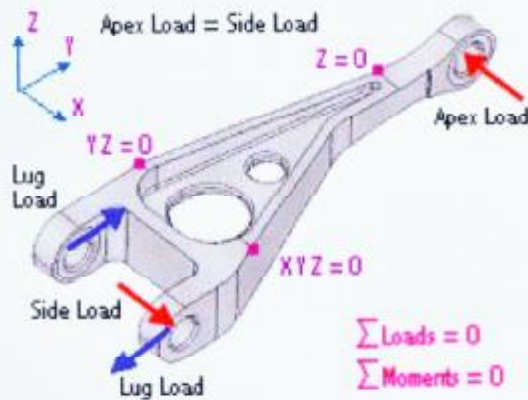


Main Features include

- Import of 3D CAD data via IGES from any source without exception
- Import 3D faceted models via STL or VRML and reverse engineer back to geometry
- Utilize powerful geometry cleaning and editing tools to remove slivers and relax sharp corners
- Quickly build new models from scratch
- Produce quality meshes with full density control within minute

- Apply loads and moments as realistic variable pressures using either built in or user specified formulas, thus avoiding the undesirable affects of using rigid body elements to spread loads
- **Create near perfect load balanced models** without hassle for even the most complex of 3D geometries and so keep your restraints to the absolute minimum
- Analyse with the integrated solver or export your model to Abaqus, Lusas or Nastran
- Comprehensive results processing including contour plots on planar cuts, load and moment summation on a planar cut and contours of result attributes defined by user equations
- Import legacy meshes and apply new loads and boundary conditions or reverse engineer back to a geometry model

The free body diagram below shows a determinate set of forces acting on a landing gear torque link. The apex load is balanced by the base lug sidewall load. The moment these two loads create is balanced by equal and opposite loads on the base lugs. Three points are restrained, the first in XYZ translation, the second in YZ and the third in Z only. These three points form a minimal set of supports.



Lug load applied as a variable pressure distribution

Capabilities available in the Pre-Processor:

- 2D Plane Stress/Strain/Axisymmetric elements
- 3D Shell and Solid elements
- 2D and 3D spring joints
- 2D and 3D slideline definitions
- Fill volumes with tetrahedral elements
- Extrude triangular or quadrilateral elements into 3D meshes
- Local coordinate systems
- User defined pressure load variations
- Sum loads in global or local axes
- Import/Export input data decks for Abaqus, Lusas and Nastran
- Import BREP entities from IGES as well as trimmed faces
- Linear or parabolic elements

Capabilities available in the Post-Processor:

- Scaled displacement plots
- Contour fringe plots on either undeformed or scaled deformed geometry
- User defined result equation functions
- Results on planar slices through 3D models
- Force and moment summations on planar slices through 3D models
- Import results from Abaqus and Lusas

The integral solver can perform a linear analysis of 2D plane stress, plane strain, axisymmetric and 3D solid models but not shell element models

For more information on DAMT Ltd
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A hassle free, no obligation 30 day trial of this highly affordable quality product is available for download from the web site:
www.Roshaz.com