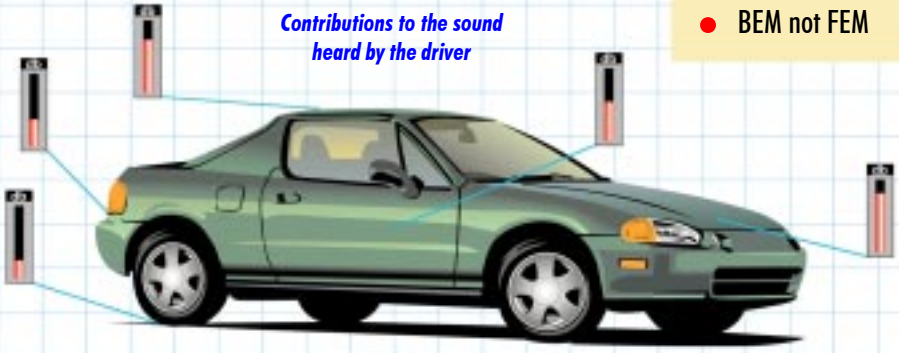
Acoustic Design Software

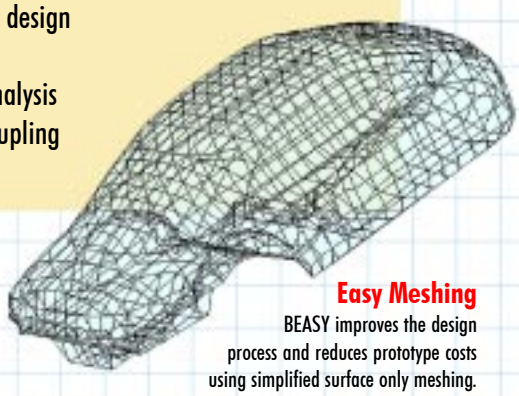
BEASY enables offending noise sources to be eliminated at the design stage by simulating the acoustic performance as part of the design and analysis cycle.

- Cost effective acoustic design
- Easy meshing
- Panel contribution analysis
- Structural acoustic coupling
- BEM not FEM

Panel Contribution Analysis

BEASY provides not only predictive tools for a wide range of acoustic problems but also introduces powerful diagnostic technology to identify the root cause of acoustic problems. Powerful panel contribution techniques can identify the exact contribution of individual elements or structural panels to the sound observed at any location.



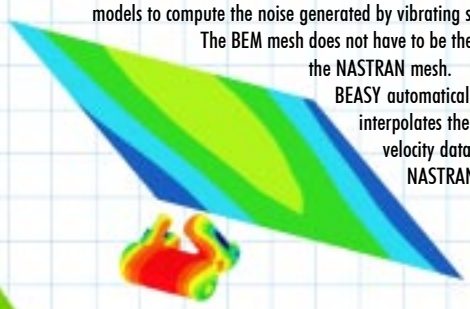


Easy Meshing

BEASY improves the design process and reduces prototype costs using simplified surface only meshing.

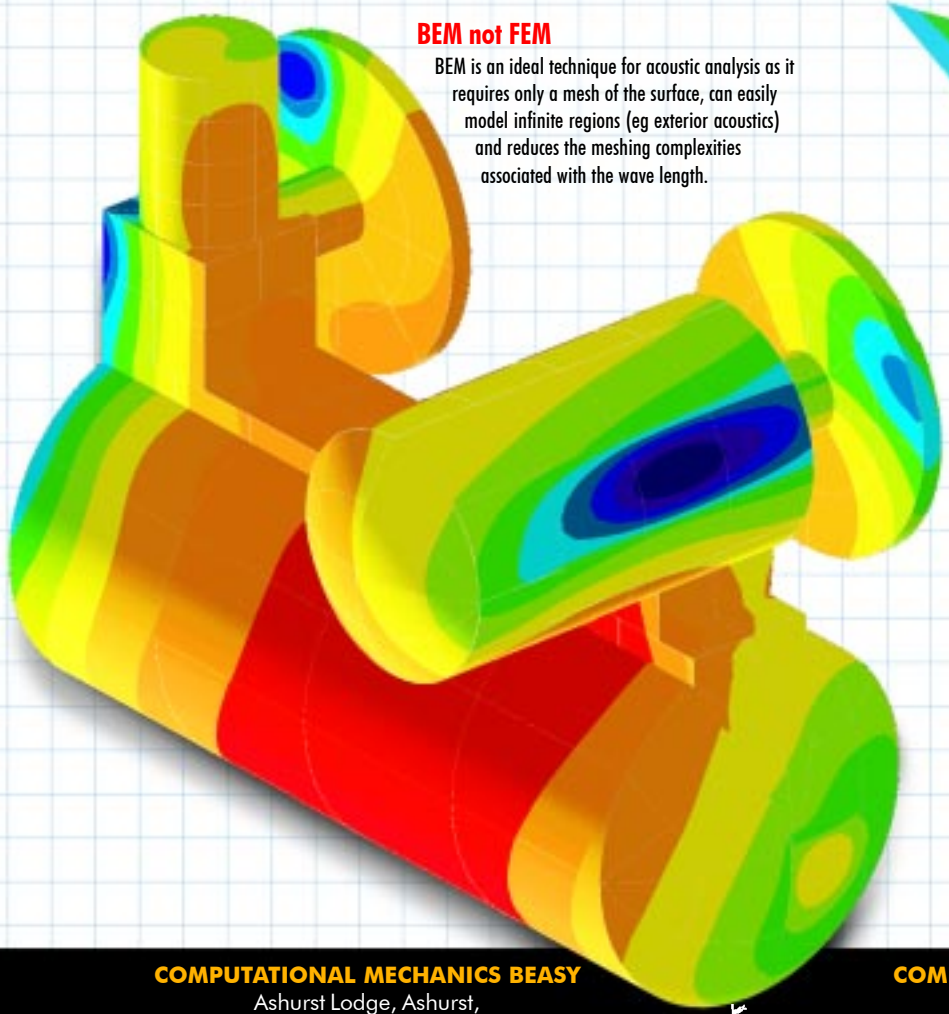
Structural Acoustic Coupling

BEASY Acoustic models can interface with NASTRAN structural models to compute the noise generated by vibrating structures. The BEM mesh does not have to be the same as the NASTRAN mesh. BEASY automatically interpolates the structural velocity data from NASTRAN data.



BEM not FEM

BEM is an ideal technique for acoustic analysis as it requires only a mesh of the surface, can easily model infinite regions (eg exterior acoustics) and reduces the meshing complexities associated with the wave length.



Cost Effective Acoustic Design

BEASY provides an excellent computer based tool for simulating the behaviour of acoustic fields. Typical applications include computing sound levels in the passenger compartments of automobiles and aircraft, structural acoustic scattering and radiation and many other noise control problems. BEASY offers the latest technology today in terms of accuracy, efficiency, reliability and most importantly ease of use.

Computer Requirements:
Windows 95, 98, NT, 2000 or Unix Workstation.

BEASY is compatible with existing modelling tools such as PATRAN and IDEAS.

Windows users can also use BEASY's own modelling tools.

COMPUTATIONAL MECHANICS BEASY
Ashurst Lodge, Ashurst,
Southampton, SO40 7AA, UK.
Tel: 44 (0) 238 029 3223 Fax: (0) 238 029 2853
E-Mail: sales@beasy.com www.beasy.com

COMPUTATIONAL MECHANICS INC.
25 Bridge Street,
Billerica MA 01821, USA.
Tel: 978 667 5841 Fax: 978 667 7582
E-Mail: sales@beasy.com www.beasy.com

BEASY enables offending noise sources to be eliminated at the design stage by simulating the acoustic performance as part of the design and analysis cycle.

- Cost effective acoustic design
- Easy meshing
- Panel contribution analysis
- Structural acoustic coupling
- BEM not FEM

Application Areas

- Environmental Noise Control
- Architecture and Engineering Design
- Vehicle NVH Engineering

Benefits

- Simple and cost effective noise prediction
- Noise control and reduction
- Structural acoustic scattering and radiation
- Vibro acoustics
- Prediction of interior and exterior noise fields
- Scattering of sound by obstacles
- Prediction of acoustic efficiency

Root Cause Analysis

- Sensitivity analysis
- Panel contribution analysis

Interfaces with finite element and experimental data

- NASTRAN FEM interface
- General Interface for importing test-structural velocity data

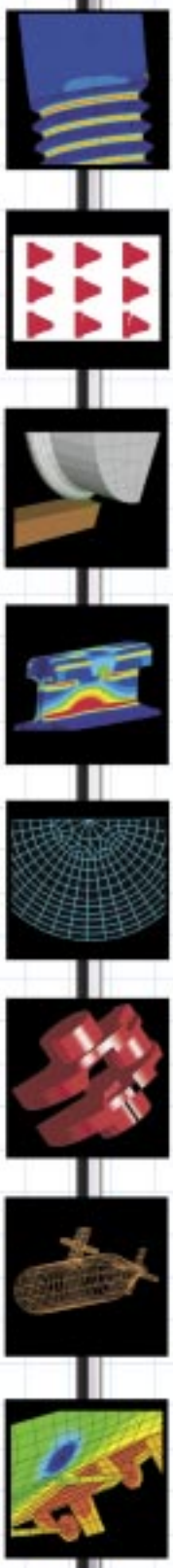
Other Capabilities

- Sound propagation through sound absorbing materials
- Simulation of problems with regions of different acoustic properties (including real or complex frequency, density, or sound speed

Diagnostic Analysis

BEASY Acoustic Design provides not only predictive tools for a wide range of acoustic problems but also introduces powerful diagnostic technology to identify the root cause of acoustic problems. Powerful panel contribution techniques can identify the exact contribution of individual elements or structural panels to the sound observed at a point.

The sensitivity of the sound to the structure velocity and surface condition (impedance) also provides key design information for the designer.



Element Library

- Complete range of elements including both discontinuous and continuous elements
- Hierarchical element types allow model refinement without change of mesh
- Quadrilateral and triangular surface elements
- All elements have high order shape functions for accurate model representation

Analysis Features

- Comprehensive checking of data and of the required computer resources ensures that no analysis runs are wasted
- Local error guides to give clear indication of solution accuracy
- Multifrequency Analysis
- Efficient and economical solution at as many user-specified "internal points" as required
- Step-by-step analysis option allows re-analysis to be carried out after minor changes without recalculation of element matrices

Zoning or Substructuring

A model can be split into any number of zones or substructures to represent different regions or acoustic properties and to improve the run times and use of computer resources.

Boundary Conditions and Loading

- Normal pressure
- Fluid velocity
- Structural velocity
- Velocity potential
- Admittance
- Impedance
- Point noise source
- Line noise source
- Acceleration

Geometry Features

- Implicit symmetry about any axis
- General zoning and substructuring

Acoustic Properties

- Real or complex fluid density, wave number and speed of sound
- Frequency dependent

COMPUTATIONAL MECHANICS BEASY
Ashurst Lodge, Ashurst,
Southampton, SO40 7AA, UK.
Tel: 44 (0) 238 029 3223 Fax: (0) 238 029 2853
E-Mail: sales@beasy.com www.beasy.com

COMPUTATIONAL MECHANICS INC.
25 Bridge Street,
Billerica MA 01821, USA.
Tel: 978 667 5841 Fax: 978 667 7582
E-Mail: sales@beasy.com www.beasy.com