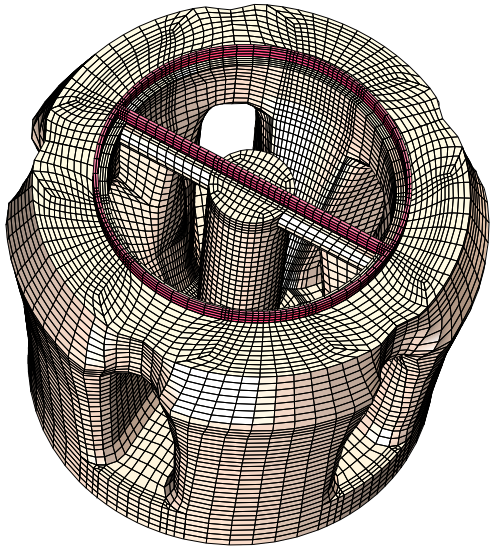
Automatic Parametric Meshes

Power users of **True*Grid*®** typically create template input files for **True*Grid*®**, taking advantage of the many parametric features to automate the building of whole classes of meshes. These features include:

- Parameters and expressions everywhere
- Logical control statements
- Subpart inclusion
- Variable mesh density
- Mesh adapted to geometry changes
- Adaptive conditions and properties



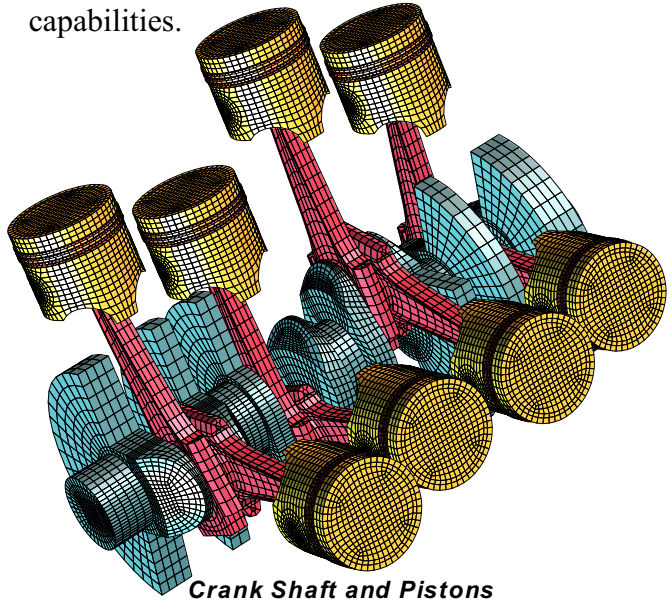
Aluminum Extrusion

The IGES geometry of an extrusion die from ALCOA was used to create the shape of the extrusion material.

Boundary Conditions and Sets

True*Grid*® supports over 50 types of boundary conditions used by various codes. It also supports linear and quadratic bricks and shells elements, beam elements, many types of contact surfaces, springs and dampers, and point masses. The material models, equations of state, and analysis options for many of the listed codes are supported. There is a plethora of graphics options to interrogate the mesh and its properties.

Conditions or properties are assigned to the mesh by selecting a region, geometry, or an arbitrary set using the mouse. Sets of nodes, faces, or elements are exported to those output options with set capabilities.

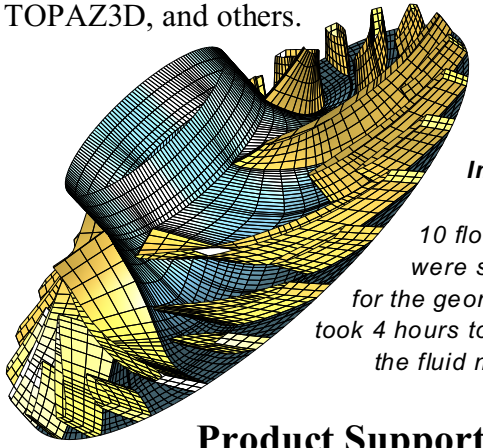


Crank Shaft and Pistons

*All geometry for this model came from the **TrueGrid®** geometry library. Many of the features in this mesh are parametric and easily changed.*

Output Formats

ABAQUS, ALE3D, ANSYS®, AUTODYN, CFD-ACE®, DYNA3D, EXODUSII, FIDAP, CFX4, FLUENT®, GRIDGEN3D, LSDYNA, MARC, NASTRAN, NEKTON, NEUTRAL, NIKE3D, PLOT3D®, STARCD, TASCflow®, TOPAZ3D, and others.



Impeller

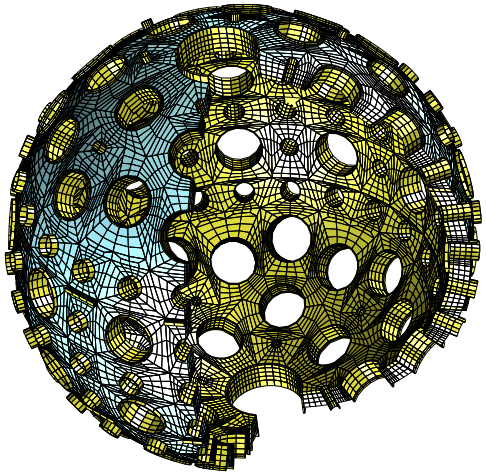
10 flow paths were supplied for the geometry.It took 4 hours to create the fluid mesh.

Product Support and Availability

Each license comes with a tutorial and a user's manual in electronic form (PDF). A hard copy of the 1500 page color manual, containing hundreds of examples, can be purchased separately. A three day training course is offered every month. This includes 1 year of upgrades and hotline support. Consulting and custom software development is also available. A network or node locked license is available for HP, IBM®, SGI, SUN®, and DEC® UNIX® workstations and for PENTIUM® processor based machines running Microsoft WINDOWS®.

PROJECTION METHOD

True*Grid*® gives the user full control by manipulating control points of a multiple block structured mesh. Then the user selects a region of the mesh and some surfaces using the mouse, and clicks on the *project* button. This constrains the selected region of the mesh to a surface or a union of surfaces. When an edge or corner is constrained to 2 or 3 surfaces or union of surfaces, **True*Grid*®** automatically moves that edge or corner to the intersection of those surfaces.

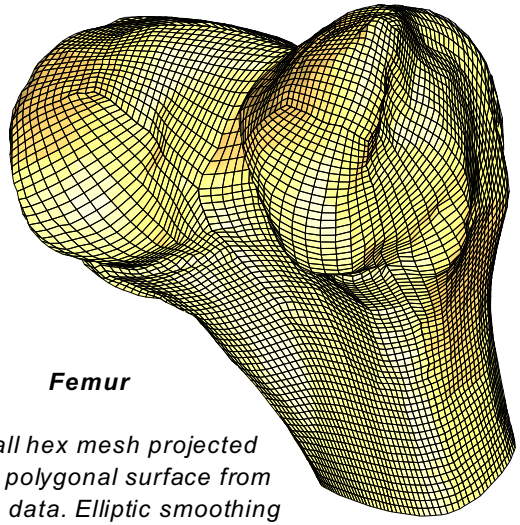


National Ignition Facility Target Chamber

Modeled by Wayne Miller at the Lawrence Livermore National Laboratory using **True*Grid*®**. *TOPAZ3D was used to calculate the heat distribution. A section of the mesh was modeled and then replicated. Shells and bricks with coincident nodes can be built within one part.*

XYZ Scientific Applications, Inc.

XYZ Scientific Applications was formed by a world-class team of PhD mathematicians and physicists dedicated to developing a powerful, sophisticated, and accurate meshing system. For the last decade, **True*Grid*®** has been used in many industries, universities, and most of the national laboratories. **True*Grid*®** is available through 8 distributors outside the U.S.



Femur

An all hex mesh projected to a polygonal surface from MRI data. Elliptic smoothing was used on the surface.

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True*Grid*®

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When you need the best meshes to get reliable answers from your analysis, choose **True*Grid*®**. And the projection method used in **True*Grid*®** creates the mesh with remarkable speed and agility, **saving you time and money**.

KEY FEATURES

All Hex 3D Element Meshes
All Quad 2D Element Meshes
Parametric
Imports IGES with NO Fix-up
FEA and CFD Analysis
30 Output Formats
Interactive and Batch
Mesh Diagnostics

APPLICATIONS

Aerospace	Universities
Automotive	National Labs
Structures	Fluids
Heat Transfer	ElectroMagnetic