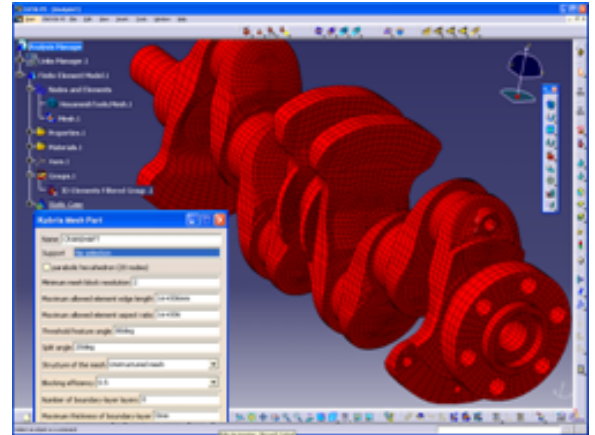


# HexaMesh Tools

**HexaMesh Tools** provides CATIA V5 analysis users with a set of tools dedicated to producing hexahedron meshes.



## Key Functionality

### Manual meshing

Meshing operations on nodes:

- creation by coordinates, by selection of an existing node or by transformation of existing nodes
- deletion of nodes
- modification of position by specifying new coordinates or by applying a transformation
- condensation on destination nodes

Meshing operations on volume elements:

- creation by selection of nodes, by extrusion of element faces or by transformation of existing 3D elements
- deletion of elements
- split of hexahedrons

Full support of spec – update paradigm:

- “Manual Mesh Part” feature used to group manual operations
- each manual meshing operation is captured in a feature
- advanced nodes and elements selection capabilities enable stability of selection during the updates

### Semi-automatic meshing

Three families of capabilities:

- mesh part operators used to modify the result of a 3D mesh part
- meshing by transformation of an existing 3D mesh (including symmetry)
- meshing by extrusion of an existing 2D mesh

Very flexible input specifications:

- input mesh selection by mesh part, group, BRep or mechanical feature
- implicit geometry characteristics can be used (e.g. the axis of a cylindrical face)

Supported transformations are translation, rotation, offset, along a curve and projection

Mesh capture with a tolerance

Uniform, arithmetic and geometric layer distributions

Symmetric layers

## Automatic hexahedron meshing

Uses the fully automatic hexahedron mesher KUBRIX

The mesher takes as inputs either a selection of geometries or a selection of triangular meshes

The resulting mesh is associative to the input geometries and can be transparently used in GPS

A local mesh size can be specified using a box

## General

Full integration with GPS

Support of journaling

Access to all capabilities via VB Scripting

Full integration with KnowledgeWare

