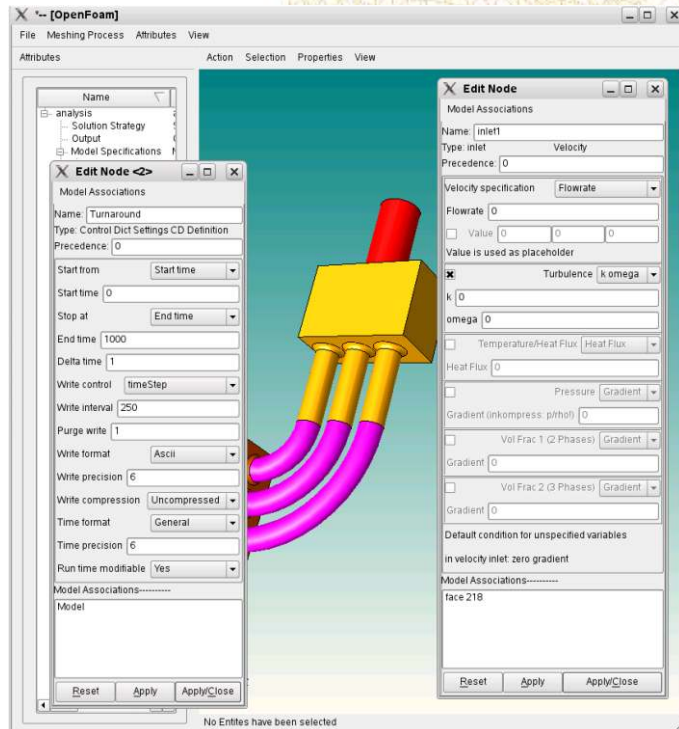


CastNet modelling for OpenFOAM

Essential OpenFOAM model setups can be conducted in CastNet:

- Definition of OpenFOAM cases (variables, controlDict, solver settings etc.)
- Convenient definition of boundary condition using derived OpenFOAM patches
- Definition of local initial conditions e.g. specification of volume fractions in particular regions
- Support of baffle faces, cyclic boundary conditions and 2d modelling
- Assistance with predefined defaults and CFD-calculator e.g. for boundary layer thickness



Direct setup of solution parameters for OpenFOAM

CastNet modelling for geometry variants

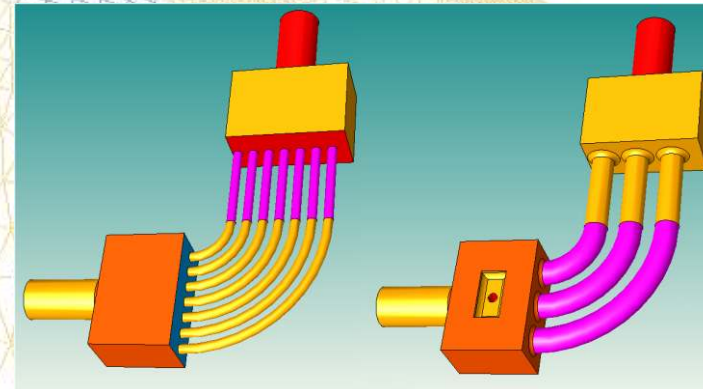
CastNet offers various options for the efficient conduction of design studies:

Small changes in the geometry model:

- Meshing parameters and modelling settings (e.g. OpenFOAM settings) can be copied from one CAD model directly to another.

Large changes or completely different CAD geometry:

- For large changes or complete different CAD geometry abstract modelling is applied: By addressing few geometric references objects (e.g. inflow/ outflow faces) model and meshing attributes can be exchanged between quite different CAD geometry.



Quite different design concepts can be compared using the abstract modelling approach

CastNet is available for Windows and Linux operation systems

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CastNet

The new meshing and modelling environment for

OpenFOAM®

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Email: info@dhcae.de

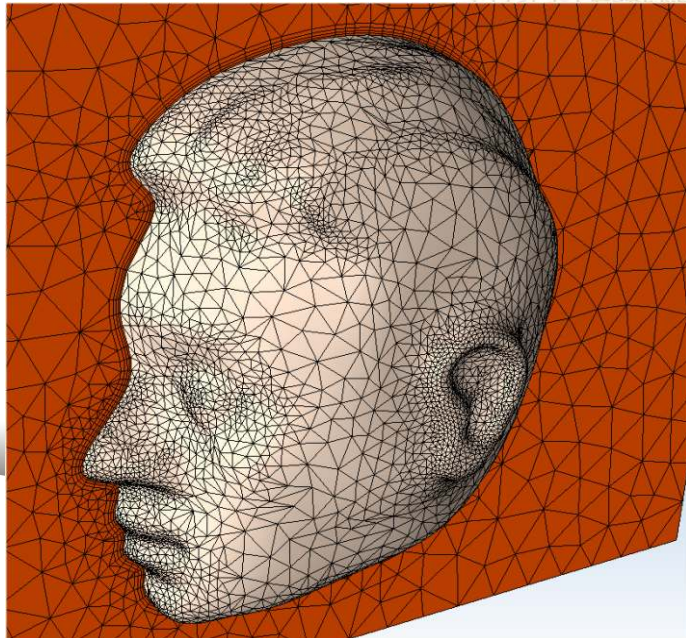
www.dhcae-tools.com

About CastNet

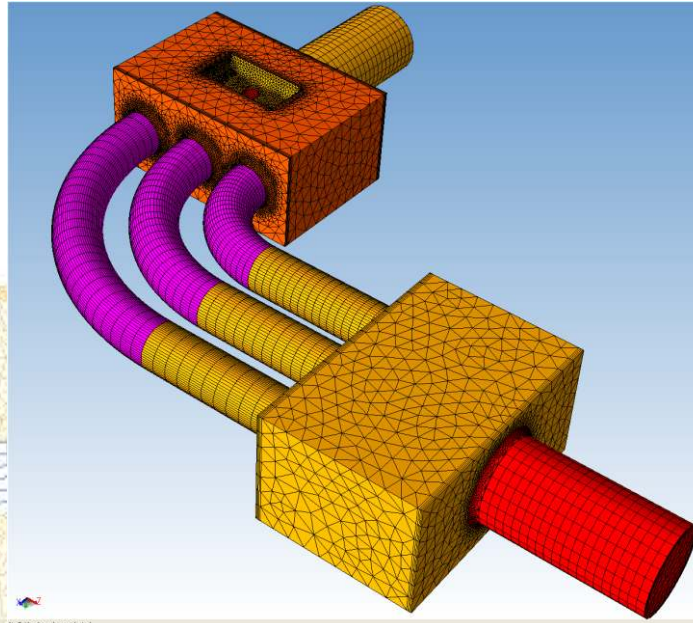
CastNet is a meshing and modelling environment for FEA and CFD. CastNet generates high quality mixed meshes using tetrahedral, prismatic, pyramidal and hexahedral elements. State of the art boundary layer meshing capabilities are provided. CastNet allows the complete model definition including boundary conditions and solver settings.

How the CastNet meshing process works

CastNet reads native CAD data (Parasolid, ACIS, Granite) or discrete mesh data. Meshing parameters (e.g. mesh sizes, boundary layers,) are defined on geometrical objects. The complete meshing process is optimized considering all meshing parameters for surface meshing, boundary layer meshing and volume meshing.



Curvature mesh control and relative element size setting result in reasonable meshes with few parameters to be defined

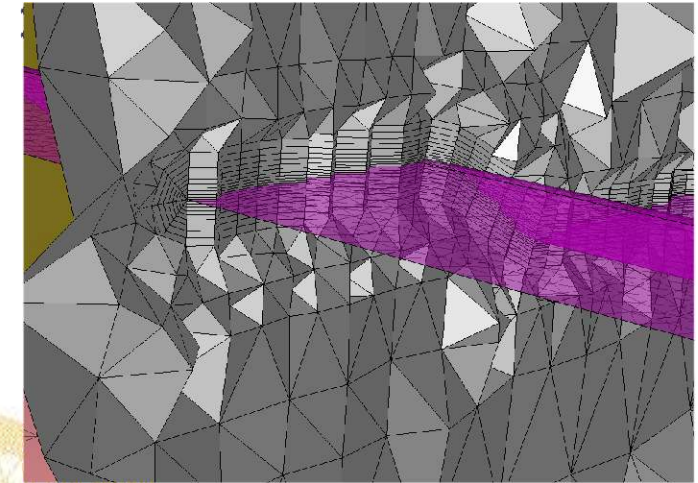


Combined extrude and free mesh region with consistent mesh transition

The CastNet advantages

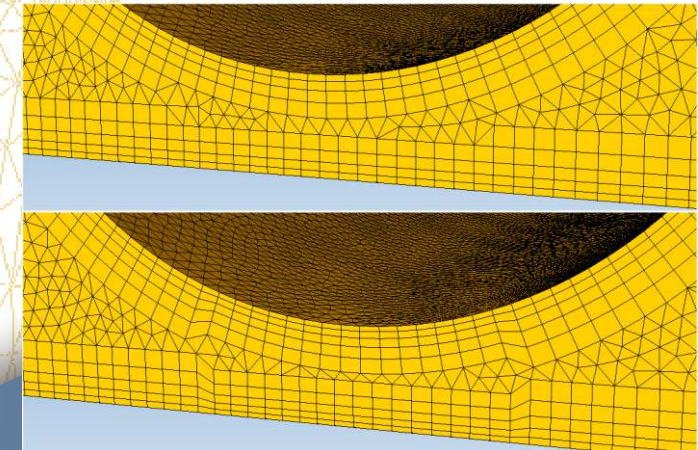
- Reliable CAD import and meshing preparation (e.g. small feature suppression if needed)
- High quality mesh generation in short time using relative element sizes and curvature control parameters.
- Full mesh control by local meshing parameters (element sizes, refinement boxes, boundary layer sizes)
- Mesh changes are quickly carried out: Changing of boundary layer thickness or setting of refinement zones is just one click.
- Meshing attributes and solution setups can be copied from one CAD model to another. By this geometry variants are quickly performed.

Boundary layer features



Boundary layer blend around baffle face

- Blends between boundary layer faces
- Resolves boundary layer intersections
- Individual boundary layer sizes
- Various growth rates options
- Transition capabilities from boundary layers to volume mesh
- Boundary layer connection from extrude to free mesh region



Various options to resolve boundary layer intersections