VR&D Genesis & GRM Plugins
Version 17.0
What's New

Design Studio 17

- Added compatibility for new features of Genesis 17
- View Catalog can be saved to file and imported from a file.
- Genesis manuals are now accessible from the Help menu.
- Beam Sections are now drawn when beam display style is set to 3D.
- Renumbering button added to edit toolbar.
- Create Elements from Voxel cover. This is particularly useful for creating data suitable for Additive Manufacture. The tool allows creation of lattice structures and skins based upon Topology Results. See Design Studio Documentation for more information.
- Create / Edit Heat Transfer loading. Analysis tab now allows for the set up of heat transfer analysis, including enforced temperatures (SPCD), heat boundary flux (QBDY1) and / or volumetric heat generation (QVOL). CHBDYE elements can be created in the Elements interface to allow boundary flux and convection boundary conditions.
- Enhanced Grid Selection. Selection of grids can now be done via Feature Line or Feature Surface.
- Quick Move Grid-Grid. Pairs of grids can now be moved to a coincident location and optionally merged.
- Find Bad RBE3 Elements. Option to select RBE3 elements which will cause problems in analysis, due to unconnected independent grids.
- Deform Scale now printed to viewport in post processing.
- Smear Topology Result option (available by right-clicking the density result). This produces a smoother topology isosurface.
- Improved picking of points on charts. A small preview point is also drawn on the curve to illustrate the selected data point.

Genesis 17

- Eigensolution of Fluid meshes. Fluid meshes can now be used for Modal Frequency Response analysis.
- Interior Acoustic Analysis. Direct and Modal frequency response analysis can be used to

solve coupled fluid-structure interaction problems. Fluid Elements have been added to allow the modelling of fluid regions.

- Von Mises Index response. This can be used to easily impose Von Mises stress constraints during optimization (including Topology)
- Von Mises Stress response is now available for Random Response optimisation.
- Progressive Topology Optimisation. A new method which allows the Power Rule (the mathematical link between element density and material property) to be changed during a topology optimisation.
- Hybrid Method Topology Optimisation. A new method of topology optimisation which can yield sharper answers. Activated using DOPT parameter POLEM. See manual for details.
- Discretized Topology Optimisation. An optional DOPT Parameter which forces design variables to be either 0 or 1 during topology optimisation.
- New CMBDOT Optimiser. A new optimizer for solving discrete or discrete/continuous variable problems.
- Improved 3rd party data support. Support added for Nastran-style heat transfer cards, and also element types such as CELAS3, CMASS3 etc. See manual for details. Support for 3rd Party contact data definitions is also improved.

GRM Design Toolkit

- Updated LS PrePost meshing software to Version 4.3
- Added new element types to the Make Connectors utility. User can now create ShapeTie, RBE2+CBUSH, MPC+CBUSH, CBUSH and MPC connections. Depending upon the selected connection type, various options are available.
- Results Envelope Creation. Simple utility to create Maximum or Minimum envelope plot from a selected set of results. Useful for plotting maximum stress of a group of loadcases.
- In RDM, extra elements can be added to the RDM region.
- When deleting RDM elements, model can be made transparent to aid with element selection visualisation
- Wrap→Hexmesh. This new tool is intended to allow simple replacement of tetrameshed parts, for optimal use in stress-based topology optimisation. Additional uses of this tool include the creation of hexa-elements within a shell skin, or the simple Voxel-meshing of STL files. See GRM Design Toolkit Overview for more information.
- Result Threshold Deletion. Simple tool for post processing of topology results. The low density elements can be removed from the model, along (optionally) with any RBE

elements which were being used to connect them to the rest of the model.

- LS Dyna Nodal Position / Thickness export. Tools to allow the simple updating of LS-Dyna models based upon shape or thickness optimisation results.

OptiAssist

- Added ability to simultaneously edit multiple plies in Composite Modeller. (Highlight multiple plies and click Edit)
- Can create multiple duplicates of a single ply, by highlighting the ply and clicking "Duplicate Multiple Plies"
- Added User-Based Topometry. This new method allows the user to cut candidate plies into Ply Patterns, which allows far greater control over the final ply shapes. This can lead to a large reduction in required post processing time.