

News You Can Use

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CT Core Technologies Inc.

From the Desk of David Selliman, VP North America

Communication in 3D is the driving force of 3D_Evolution's® FEM modules. These modules empower companies to bridge the communication gap between CAD and CAE (Computer aided Engineering) departments across the globe. Now 3D models can be provided to the CAE departments with a click of a button. Core Technologies' development team has even gone one step further to allow its users of 3D_Evolution the ability to modify the B-Rep data with its 'direct modeling' module on any CAD model.



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Understanding FEM Tools

De-Featuring

Automatic FEA (Finite Element Analysis) generation of CAD-generated data has been a goal of FEA meshing codes for years. However, the lack of accuracy and the amount of detail in the data has made this a daunting task. The bottom line is that the CAD data needs to be de-featured to overcome accuracy deficiencies and to remove excessive detail such as removing fillets, holes, bosses and chamfers. 3D_Evolution's de-featuring module has dramatically decreased the time it takes in preparing CAD models for FEA analysis as well as CFD (Computational Fluid Dynamics) and other CAE analysis such as durability and NVH (Noise Vibration Harshness). Recently a Tier 1 supplier benchmarked the technology and said, "What took hours can now be completed in minutes." Further, for every eight hours

of preparing a model, the CAE analysis was done in less than one hour. Through intelligent semi-automatic "de-featuring" functions for geometry simplification, features such as holes, rounds, chamfers or other irrelevant details can be eliminated from the models within seconds, without any specific CAD know-how.

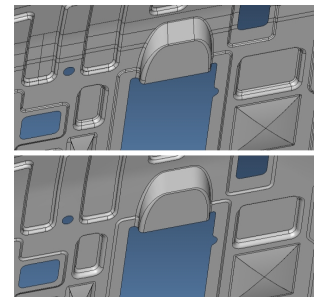
Mid Face Creation

With a click of a button the automatic creation of exact middle surface between two surfaces can be realized. Even complex sweeps and corners can be calculated within seconds using 3D_Evolution. Incorporating the Advance healing kernel with in 3D_Evolution Mid Face Creation tool will automatically extend faces that end at a T with a adjacent face. This will ensure no gaps in the model and will result in a higher quality model when it is time to mesh. This function can be incorporated in a batch process or in the interactive mode of

3D_Evolution.

Meta-Face

Mini patches and their basic surfaces can be merged through the meta-face function within user-defined tolerances. Furthermore, the meta-facing process can be run fully automated or interactively. The elimination of problematic mini patches and long thin faces brings a face reduction of approximately 40-70%. The resulting geometry comprises fewer elements and can be meshed and handled much easier in the next process.



The number of faces dropped from 815 to 216!