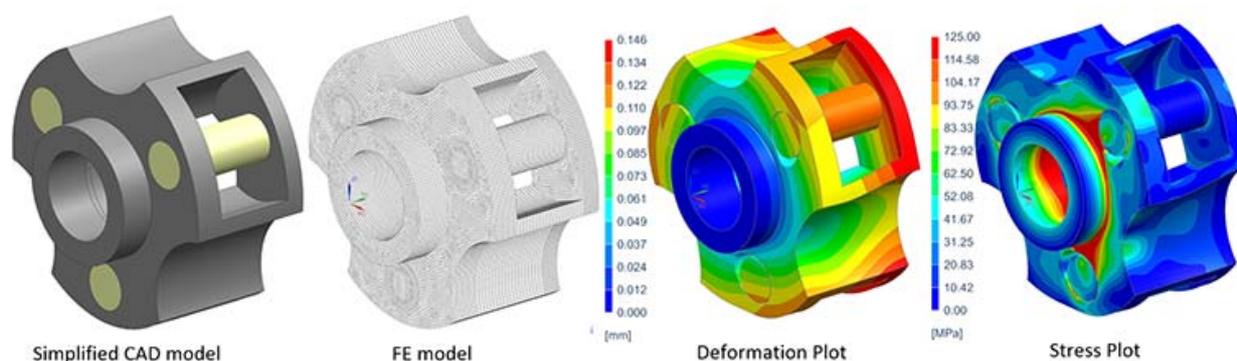


NEWS (/NEWS) Author: Auto Tech Review Bureau

Avtec Files for Patent on CAE Approach to Planetary System Design



Computer aided engineering (CAE) helps to identify and resolve the issues with structural integrity of transmission components at early stage of development. Finite element modelling (FEM) based virtual validation procedures are an integral part of transmission design at AVTEC's R&D (Off Highway). Being a virtual validation, it helps to make many modifications in the design iteratively by understanding the structural characteristics.

Though, many commercial FEM tools are available for this purpose, it requires

significant expertise to apply such tools. It is sole responsibility of the expert who has to understand the physics behind the tool and the problem to be solved. Considering the requirement of virtual validation and lack of standard structural evaluation methods, CAE team involves in the development of robust analysis methods for the transmission components at R&D (Off Highway). Based on the significant research, a novel approach is developed to analyse the structural behavior of planetary gear carrier.

The developed method can predict the structural behavior of gear carrier and planet pins that are assembled with interference fit. The combined effects of applied torque, stresses due to interference fit, and local stress fluctuations due to ovality of planet pin-hole can be predicted considering the structural stiffness of meshing gears. Comparing various methods that are in practice to analyse this component, the proposed novel approach can predict the structural characteristics more accurately combining various influencing parameters.

Based on this approach, Avtec has filed for a provisional patent application for this novel approach entitled, 'A System and Method for Evaluating Structural Behavior of a Planetary Gear Carrier, by Intellectual Property India on March 2019 and has been filed by the team consists of Dr. K. C. Ganesh, Mr. K. Dhanasekaran and Mr. Venugopal Nair.

◆ [Avtec \(/component/tags/tag/1389-avtec\)](/component/tags/tag/1389-avtec)

◆ [Planetary System Design \(/component/tags/tag/1390-planetary-system-design\)](/component/tags/tag/1390-planetary-system-design)

