Immediate Availability of LSTC-FCA Tire Model for all LSTC Customers

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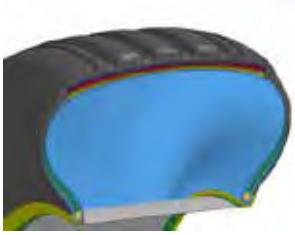

LSTC is pleased to announce the immediate availability of Tire models, jointly developed with FCA, for all customers.

The Tire models, can be downloaded from http://ftp.lstc.com/anonymous/outgoing/suri/LSTC_Tire/.

Introduction

The LSTC Tire models, jointly developed with FCA, is based on a series of material, verification and component level tests. The finite element mesh was developed based on 2D CAD data of the Tire section. All major components of the Tire uses 8-noded hexahedron elements. The elastomers are modeled using *MAT_SIMPLIFIED_RUBBER and the plies are modeled using MAT_ORTHOTROPIC_ELASTIC

Tire Model Features

Following list broadly identifies the major features of the Tire model

- 240,000 elements comprising mainly of 8-noded hexahedron elements using element formulation -2
- Inflation is based on *AIRBAG_HYBRID with mass-flow using *DEFINE_CURVE_FUNCTION to achieve desired initial pressure
- Deflation is based on *SENSOR to trigger leakage (venting or porosity). The sensors track the peak Tire pressure (1.4*initial_pressure as default) and the separation of the Tire from the wheel which is tracked using FORCE_TRANSDUCERS. Peak pressure triggers venting and wall separation triggers porosity-based leakage that accounts for contact blocking.
- No additional contacts are required to model the interaction with vehicle and other components
- Elastomers are modeled using *MAT_SIMPLIFIED_RUBBER with rate-dependency and the plies are modeled using *MAT_ORTHOTROPIC_ELASTIC
- Mounting of the Tire on the wheel is modeled using *LOAD_THERMAL_VARIABLE and initial temperature imposed on the steel beads to model initial compressive stress
- The initial version do not include material failure

Available Tire Sizes

Based on a single tire, different tire sizes were geometrically transformed. The library of Tires currently available include the following.

LSTC_FCA_Tire_P235_45_R19.k
LSTC_FCA_Tire_P235_55_R19.k
LSTC_FCA_Tire_P235_65_R17.k
LSTC_FCA_Tire_P245_50_R20.k
LSTC_FCA_Tire_P245_75_R17.k
LSTC_FCA_Tire_P255_70_R18.k
LSTC_FCA_Tire_P275_65_R18.k
LSTC_FCA_Tire_P305_35_R20.k