



GAMMA
TECHNOLOGIES

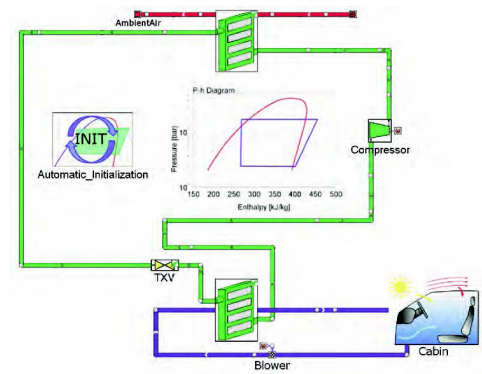
Comprehensive Thermal Simulation for Passenger Cabin Comfort with **GT-SUITE**

Fast and Robust Simulation of Two-Phase Flows

GT-SUITE has a highly advanced capability for solving two-phase flows. It is based on the same proven flow solver used for a wide range of fluid simulations in GT-SUITE, such as engine performance, fuel injection and hydraulics. It handles two-phase fluids based NIST REFPROP thermodynamic properties, complemented by a variety of two-phase flow heat transfer and pressure drop correlations. The model is completely transient, to allow a broad range of investigations. Because of its strong fundamental flow solution methodology, it is very robust and allows the simulation to start from an arbitrary starting point. The code execution is faster than real-time.

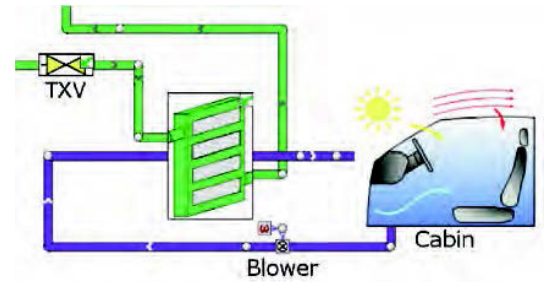
Comprehensive, Easy-To-Use Solution:

Models built in GT-SUITE enable rapid definition and calibration of cabins, allowing various design studies, such as component layout choices in the A/C loop, or assessing the effect of different window glazings on the overall HVAC system performance. These cabin models can be used to provide boundary conditions to air conditioning loops with varying levels

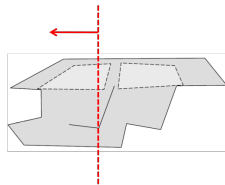
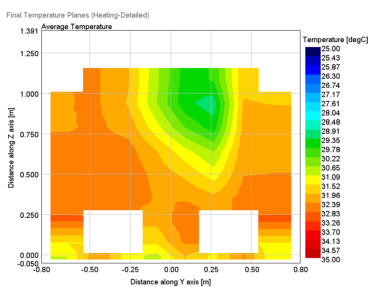


Co-Simulation with GT-THAITHERM

GT-SUITE offers the ability to create cutting-edge models by cosimulating with ThermoAnalytics' TAItherm and GT-TAItherm, a special version of TAItherm packaged directly inside GT-SUITE. With these cosimulations, real-time capable 3D cabin comfort models can be created which are used standalone or directly implemented into a full GT-SUITE



Application Highlights:



- Easy to use cabin models of varying resolutions depending on goals
- Pre-defined geometries for most common vehicle classes
- Real-time capable, 3D high resolution (up to 100,000 volumes) cabin models
- Seamlessly connect cabins into other subsystems (i.e. A/C, Vehicle Cooling) modeled in GT-SUITE for feedback
- Integration with ThermoAnalytics' TAItherm tool for improved thermal accuracy and passenger comfort predictions
- Integration with 3D CFD Tools (GT-CONVERGE, Fluent, STAR, OpenFoam, and other codes)

Advanced Features and Applications:

- Optimize compressor control strategies based on zonal temperatures
- Easily integrate into other GT-SUITE models (i.e. A/C evaporator air circuit)
- When cosimulating with TAItherm, import available CFD flow fields and replace GT-SUITE's flow solution
- Utilize TAItherm's built-in thermal manikin model to predict comfort of the occupants
- Design vehicle, aircraft, and other types of cabins
- Run drive cycles (i.e. NEDC) at real-time speeds

