QUANTUM AGE
SIMULATE-MEASURE-OPTIMIZE-BUILD

SilentRoll
TIRE NOISE SIMULATION AND TIRE DESIGN OPTIMIZATION SOFTWARE

SilentRoll is our innovative software package to simulate automotive tire noise. The software is used by tire manufacturers to simulate tire noise and optimize tire tread design for superior or noise quality.
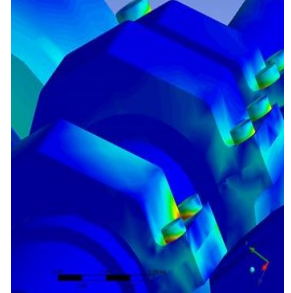

Tire noise is the second largest noise component in an automotive vehicle external noise. The ability to assess tire noise at design stage enables tire designers to design lower noise tires and optimize the tire design for desired noise performance. In view of UN ECE Regulation No. 117, it will be increasingly more important to design lower noise tires in the years ahead.

SilentRoll allows tire engineers to consider the effect of various tire components and the tread pitch designs. Using SilentRoll the tire designers can optimize a given tread pitch combination for most desirable sound signature. The tire could be divided into multiple tracks for track offset effect simulation on tire noise. SilentRoll gives as an output the optimized tread pitch sequence and also the dB and dBA levels of tyre noise. SilentRoll models tire carcass and tire tread portion for their contribution to tire noise and the formulation arrives at the excitation of surrounding air based on the tire surface vibration under contact with the road surface.

Engineering Simulation
FINITE ELEMENT STRUCTURAL AND THERMAL ANALYSIS, CFD SIMULATION, AND NVH STUDIES

We provide you right technical know-how and help you solve your engineering simulation problems fast. The below list describes the broad range of demanding simulation problems that we have handled:
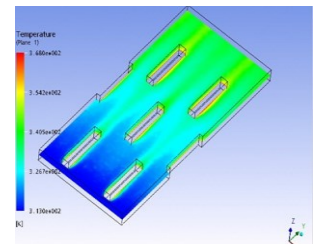

Structural Analysis
Material and Geometric Nonlinear Analysis
Analysis of joints
Contact Modeling
Noise and Vibration
Transient analysis
Frequency domain vibration analysis
Crankcase design for lower noise
Vehicle cabin-noise
Silencer / muffler design
Gear vibration & noise
Electrical machinery noise including motor noise and transformer noise
Heat & Mass Transfer
Thermal analysis for coupled field problems
Compressor / Engine crankcase heat transfer simulation
Automotive cooling system design
Silencer heat dissipation

CFD
FLOW AND HEAT TRANSFER SIMULATION

Quantum Age executes high-end Fluid Flow and Heat Transfer simulation projects using various CFD simulation tools.

We have domain expertise in modeling multi-phase mixing phenomenon including particle mixtures.

Our CFD specialists can handle particle to particle force quantification and can extend a CFD simulation result set into a product design metric for design optimization based on flow passage effectiveness to achieve fluid stream objectives.