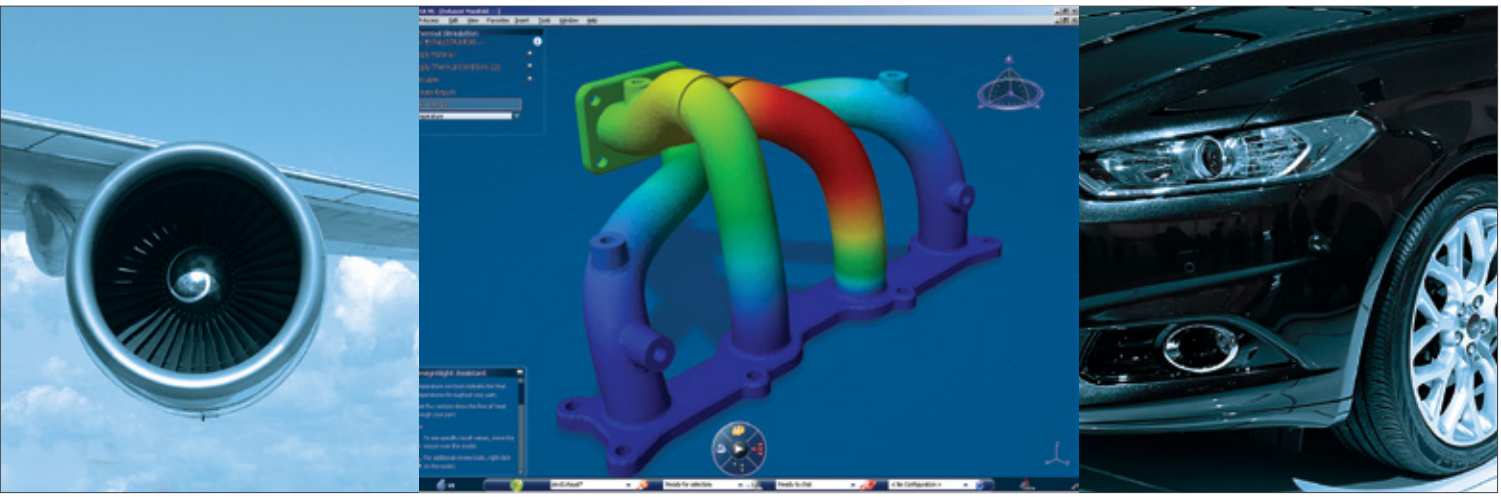
SIMULIA | DesignSight Thermal (DTH)

Enables up-front realistic simulation of product assemblies under thermal conditions



DesignSight Thermal

Overview

Designers can now perform quick design validations as they create their designs, resulting in time and cost savings and better designs. SIMULIA's DesignSight products provide powerful yet accessible simulation capabilities seamlessly integrated into a CAD environment on the 3DEXPERIENCE Platform.

DesignSight Thermal extends SIMULIA's family of DesignSight products to enable designers and design engineers to model real-world thermal behavior. Assemblies can be assessed under a variety of thermal loading conditions with the goal of providing early insight into thermal performance, leading directly to better engineered and more innovative products.

Features & Benefits

- Steady-state thermal simulation on individual parts and assemblies
- Interactions between parts in an assembly
- Proven Abaqus multiphysics simulation
- Accurate results with minimal user input
- High-performance computing on multi-core workstations
- Runs on remote HPC clusters when Abaqus tokens are available
- Based on **3D**EXPERIENCE lifelike user experience
- Guidance at all times to help the user understand what to do next
- High-performance results visualization
- Natural extension of the design experience
- Advanced simulation technology with an easy-to-use interface

DesignSight Thermal Highlights

Fosters creativity through up-front simulation

DesignSight provides a natural extension of the design experience enabling designers and design engineers to simulate their design's thermal behavior and to rapidly explore different design options. DesignSight is designed tobe easy to use, while including all the functionality needed to simulate complex, real-world behavior.

Intuitive user experience

DesignSight provides an immersive user interface, in which the user interacts directly with the 3D model with minimal reliance on icons and dialog boxes. The user experience reduces the need to understand simulation technology and the options presented to the user are intuitive and powerful. For example, the finite element mesh underlying the computation is automatically created and adaptively refined to ensure high-quality results. Users receive continuous guidance regarding where they are in the simulation process and what they need to do next, so that they are never lost.

Manages simulations automatically

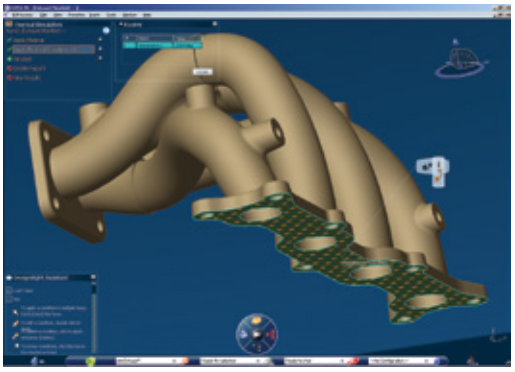
DesignSight leverages the 3DEXPERIENCE platform to manage the lifecycle and to ensure all product data, including part, product assembly, and all simulation data, are synchronized and traceable.

Provides high-quality results using Abaqus multiphysics technology

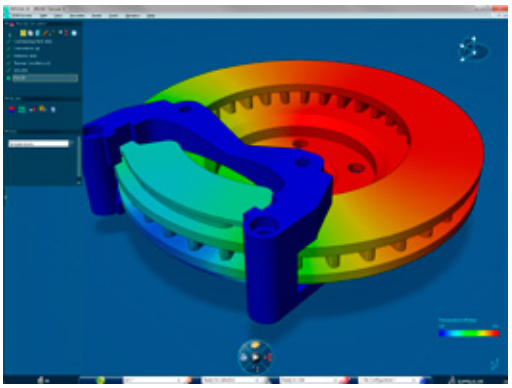
Uses proven Abaqus multiphysics capability to provide reliable results backed by more than 35 years of continuous development and industrial use. Advanced users of simulation have long considered Abaqus multiphysics a premier tool to help solve some of the most vexing design and engineering problems. DesignSight makes this state-of-the-art technology more accessible than ever before.

Enables rapid turnaround time in the simulation of large models

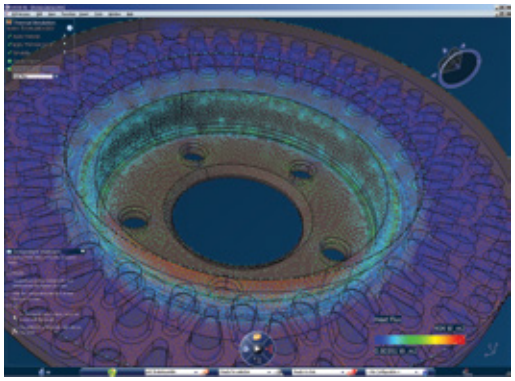
DesignSight includes cutting-edge parallel computation technology to utilize modern multi-core workstations to obtain simulation results quickly. Users with access to a compute cluster and Abaqus tokens can seamlessly run the simulation on the cluster and use 128 cores or more for extremely rapid turnaround times on large models.



Using DesignSight Thermal, the designer can interact directly with the model to define the thermal load application regions and magnitudes on this exhaust manifold.



In this thermal simulation of a brake assembly, DesignSight provides insight into the flow of heat and the resulting temperatures under realistic environmental conditions.



As shown in this model of a brake disk, the designer can use DesignSight Thermal to study how parts react to thermal loads and to visualize the resulting temperature distribution and heat flow characteristics.