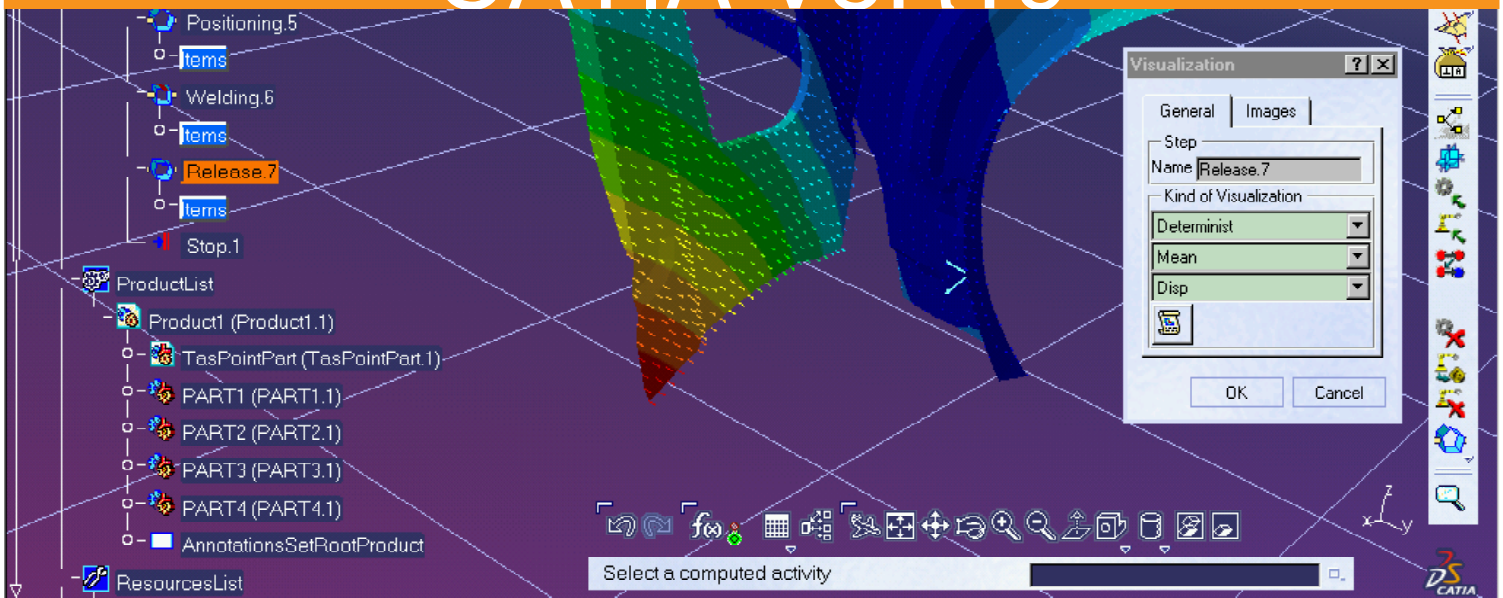
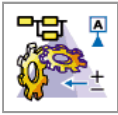


Analysis

# CATIA - Tolerance Analysis of Deformable Assembly 3 (TAA)

## CATIA V5R19





## Analysis

# CATIA - Tolerance Analysis of Deformable Assembly

Easily predict the tolerancing specified on assembly considering the whole sheet-metal assembly process.

### Product overview

CATIA - Tolerance Analysis of Deformable Assembly 3 (TAA) is new-generation CATIA product to predict the tolerancing specified on assembly relative to tolerancing specified on the single part, and this by taking both deformation and assembly process into account .

CATIA -Tolerance Analysis of Deformable Assembly 3 (TAA) product can be used either at the digital phase (from specified variations) to help the customers to specify or/and validate

>the assembly process (assembly order, welding/riveting order),

>The tolerancing specified,

>the geometry of the part,

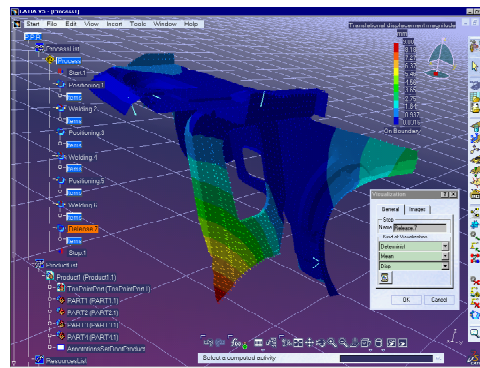
>the property of the sheet-metal part (thickness, material).

At the manufacturing phase (from measured variations) to help the customers to find some corrective actions (with sensitivity analysis) to set-up the process (add some new locators, modify welding order,...)and then to solve some problems appeared during assembly operation.

The requirement of reducing product costs by reducing development cycle times can be satisfied by using CATIA - Tolerance Analysis of Deformable Assembly 3 (TAA) product.

### Product Highlights

- Transparent tolerance analysis on product geometry
- Easy creation of data needed to perform a



simulation

- P.P.R. commands to specify the assembly process
- Computation command to simulate the assembly process
- Results display

### Product Key Customers Benefits

#### Predict the tolerancing specified on a sheet-metal assembly

New generation of CATIA P3 platform product, to predict the tolerancing specified on assembly relative to the tolerancing specified on the single part by taking both deformation and assembly process into account.

#### Applies to both deformation and assembly process approaches

Based on mechanical approaches, taking both deformation and assembly process into account, it predicts the tolerances for welded, riveted, bolted or glued assemblies of sheet-metal parts.

#### Imports data through CATIA V4 mesh

### **import mechanism to the product document**

Sheet-metal assemblies, created with CATIA V4 are readable to the Tolerance Analysis system, to be further more checked for cumulative tolerancing analysis.

### **Operates simulation from any V5**

#### **Sheet-metal product**

**Easily retrieves data from 3D Tolerancing (FTA) and Geometric variations from simulation/** CATIA - Tolerance Analysis of Deformable Assembly 3 (TAA) can benefit from designer's previous work on CATIA to reuse some relevant information and refine their Tolerance Analysis. Tolerance information from CATIA - 3D Functional Tolerancing 2 (FTA) and/or Geometric variation information from CATIA - Generative Part Structural Analysis 2 (GPS) can be easily read and used by the product to perform a comprehensive analysis taking in account as relevant parameters as available.

#### **Easily creates data and assembly process specifications**

The user can automatically check if the process he specified does not contain mistakes. For instance, the system can detect if there are two Spot-Welding on the same point.

#### **Checks Process before simulation to avoid deficiency**

#### **Simulates the assembly to perform a set of tolerancing analysis**

Provides Sensitivity analysis, Determinist analysis, Worst case and Statistic analysis that are based on the same common computation. The integration of the FEM analysis to the model elastic deformation, in the assembly process, results in a finer and more realistic simulation. The user can get a sensitivity analysis to identify the key characteristics of the assembly. The user has also the ability to filter the initial defects of individual parts in the simulation results : allows user to get a more accurate diagnosis of process influence only. It gives user the ability to get for a given default the contribution of the process to the results.

#### **Easy re-computation of simulations**

The type of simulation used allows users

for fast update simulation when the assembly process or some data input (Spot-welding, Contact, Join, positioning system,...) is modified, added or removed. There is no need to re-compute the simulation if only the input variables are modified and no need for lengthy Monte-Carlo Simulations.

#### **Multiple view displays simulations**

Graphical display of Statistical and determinist analysis results are provided through displacement representation (using FEA representation) and point deviation (using arrow and ellipsoid). Graphical display of Sensivity analysis results is provided through the representation of input deviation contributions (in percentage) on output deviation. Statistical and determinist analysis results are also available through numerical display. Graphical display of Residual stress, and graphical and numerical display of Reaction Forces (on fastenings, supports and joints) are also provided.

## ABOUT CATIA V5R19

CATIA is Dassault Systemes' PLM solution for digital product definition and simulation.

**[www.3ds.com/products/catia](http://www.3ds.com/products/catia)**

