

3DCS Mechanical Variation Modeler

Mechanical Tolerance Analysis for the Design Engineer

Mechanical Tolerance Analysis for Design Engineers of Rigid and Mechanical Assemblies

3DCS Mechanical Variation Analyst is built on the 3DCS platform incorporating 3DCS Mechanical Modeler Add-on into its base functionality to model complicated linkages and mechanical assemblies with easy to apply Moves, Joints, and Constraints.

Mechanical Tolerance Analysis Solution - The What

3DCS Mechanical Variation Modeler is a standalone or CAD integrated platform, designed as a less complex tool compared to 3DCS Variation Analyst, focused on mechanical joints and constraints to make modeling more intuitive for mechanical assemblies.

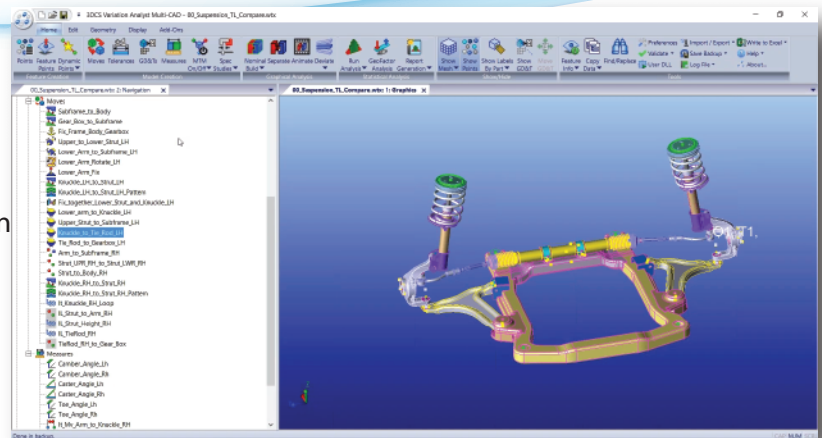
Model Part and Process Variation - The How

3DCS Mechanical Variation Analyst uses two methods of simulation; Monte Carlo Simulation & Sensitivity Analysis. These analyses determine both the sources of variation as well as the risk of potential build issues in the product.

As a mechanical and kinematic based tool, 3DCS Mechanical Variation Modeler utilizes the same joints and constraints as the 3DCS add-on module Mechanical Modeler. These functions allow the modeling of mechanical movements and analysis through their range of motion to determine the effect of variation on product function.

Gain New Insight Into Your Design - The Why

It is well known that the earlier in the product lifecycle an issue is found, the cheaper it is to fix. When a product is still in the digital design phase, an engineering change can be as simple as a click of a mouse. However, as soon as the product gets into the customers' hands though, a simple engineering change may mean recalls and warranty claims. This costs exorbitantly more than updating a CAD model.



Key Product Highlights:

Integrated and Standalone Versions -
Use 3DCS Mechanical integrated into CATIA V5, 3DEXPERIENCE, Creo, NX, SOLIDWORKS, or the CAD neutral Standalone version.

What-If Studies -
Test design changes using simulation to reduce the need for prototypes.

Identify the Source of Variation -
Find the true source of your problem to root cause build issues and non-conformance.

Analyze Dynamic Positions -
Use kinematic motion to analyze products through their functional range of motion to determine the effects of variation.

Account for Processes and Tooling -
Model assembly process, tooling, fixtures, clamping, Datums, Locators and account for their added variation.

Use Library of Joints and Constraints -
Model with a prebuilt library of joints and constraints for ease of modeling mechanical and kinematic products.

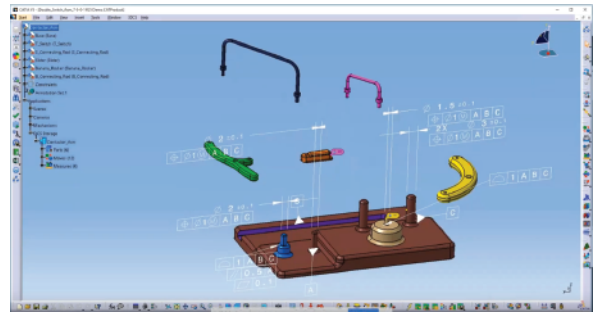
Read in embedded CAD GD&T, Joints and Constraints -
Read in CAD GD&T in the form of PMI or FTA, and use CAD Joints and Constraints to quickly set up your

Find Design Defects Early in the Product Lifecycle

Pull in Embedded GD&T (PMI) & Joints and Constraints

3DCS Mechanical Variation Modeler reads in Joints, Constraints, and GD&T (PMI/FTA) to quickly tolerance and build your Tolerance Analysis models.

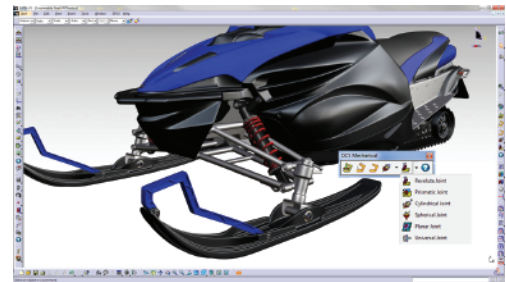
- Create and start analyzing faster with embedded GD&T (PMI)
- Read in Joints and Constraints to assemble the product
- Determine which areas are critical to your build quality to focus on and measure
- Save money by loosening non-critical tolerances (and make your suppliers happy)



Read in embedded GD&T in the form of PMI and FTA

Build Kinematic Model Using a Library of Joints & Constraints

Model your mechanical design with an intuitive library of Joints and Constraints. Similar to those found in CAD, the library of Joints and Constraints makes modeling faster and more intuitive to build your mechanical assemblies.

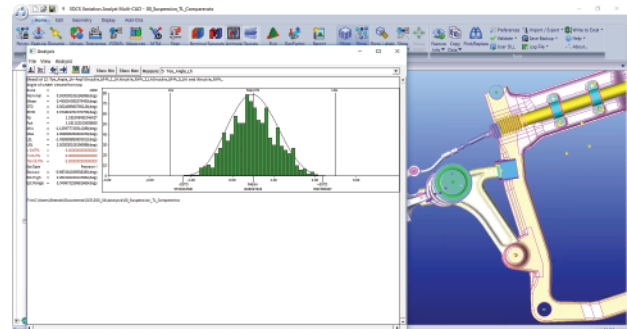


Validate your product through its range of motion

Find the Source of Variation and Improve Quality Through Iteration

Use 3DCS software to hone in on the source of variation, and then use iterative design changes to optimize your product for manufacture and assembly (DFMA - Design for Manufacture and Assembly).

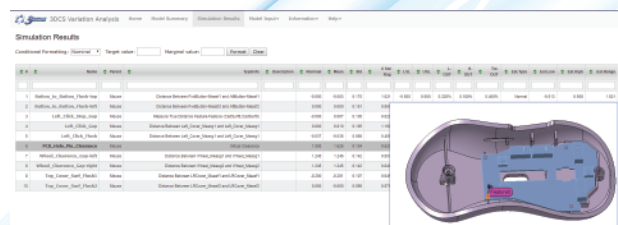
Making changes to the design based on your simulation results, the answers become a button push away. Change the design in your CAD, adjust tolerances, change assembly processes, and quickly see the results. Compare and contrast different build strategies, locators, datum plans, tolerances, and other inputs to see how they affect your final product.



Create Digital Twins with Manufacturing Process and Part Tolerances

Collaborate and Present with One Button Reports

With push-button reporting, instantly create html and Excel reports from your analysis results to share with colleagues.



Name	Status	Value	Min	Max	Target	Tolerance
1. Balling_01_Balling_Plate_001	Success	0.000	0.000	0.000	0.000	0.000
2. Balling_01_Balling_Plate_002	Success	0.000	0.000	0.000	0.000	0.000
3. Balling_01_Balling_Plate_003	Success	0.000	0.000	0.000	0.000	0.000
4. Balling_01_Balling_Plate_004	Success	0.000	0.000	0.000	0.000	0.000
5. Balling_01_Balling_Plate_005	Success	0.000	0.000	0.000	0.000	0.000
6. Balling_01_Balling_Plate_006	Success	0.000	0.000	0.000	0.000	0.000
7. Balling_01_Balling_Plate_007	Success	0.000	0.000	0.000	0.000	0.000
8. Balling_01_Balling_Plate_008	Success	0.000	0.000	0.000	0.000	0.000
9. Balling_01_Balling_Plate_009	Success	0.000	0.000	0.000	0.000	0.000
10. Balling_01_Balling_Plate_010	Success	0.000	0.000	0.000	0.000	0.000

Use Reports to Quickly Share and Collaborate on Tolerance Stack Results

DCS is a software developer providing tolerance analysis and quality inspection solutions to the automotive, aerospace, medical device, electronics and energy industries. With more than 20 years' experience, DCS has grown to include clients from every region of the globe including companies like Airbus, BMW, GM, LG, Jaguar Land Rover, Phillips, Sony, Textron Aviation and Volkswagen. As a quality solution provider, DCS prides itself on providing clients not just software, but services, staffing and dedicated support to guarantee the success of their quality initiatives.