

# GKN Automotive CASE STUDY

## VCollab Streamlines Simulation Results Processing and Produces Better Simulation Insights to Improve Designs

### About GKN Automotive

GKN Automotive is the automotive industry's only supplier focused on drive system technologies.



GKN Automotive is the world's number 1 supplier of essential driveline components, all wheel drive systems, and electric drive systems.

50% of new cars worldwide feature GKN Automotive systems and solutions.

### Overview

Simulation experts at GKN Automotive in the US and Mexico use VCollab to share simulation results with design engineers and other internal and external customers. This case study describes improvements to the quality of simulation results shared with stakeholders, along with efficiency gains for simulation analysts and end-users, achieved by using VCollab.

“ VCollab has more than lived up to our expectations for making it faster and easier to create simulation reports. Instead of spending additional time producing slide decks of static 2D results for our customers, VCollab lets us quickly and easily create 3D results which they can pan, zoom, rotate, and animate, to understand the simulation more completely and thoroughly. This has led to better and faster design decision-making.”

*Knowledge Based Engineering Mgr.  
GKN Automotive*

### About VCollab

VCollab helps manufacturers deliver better products by making actionable, 3D simulation insights easily shareable across teams, geographies and global supply chains.

VCollab automates the process of extracting, merging, and reporting simulation insights in a 3D, high-fidelity, browser-viewable form, expanding access to critical simulation insights to the extended design team. It also saves valuable simulation analyst time by eliminating the need for manually- created, 2D simulation reports.

VCollab enables better and faster engineering decisions — and ultimately better products.

## VCOLLAB

Actionable Simulation Insights



[www.vcollab.com](http://www.vcollab.com)

 (248) 835-6880

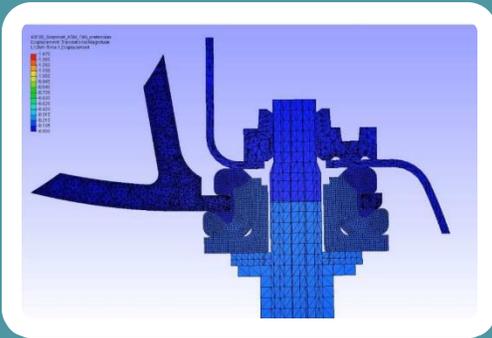
 @VCollab

 @VCollab-Inc

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100 West Big Beaver  
Road Suite #200  
Troy, MI 48084

## Streamline Simulation Results Processing & Improve Simulation Insights

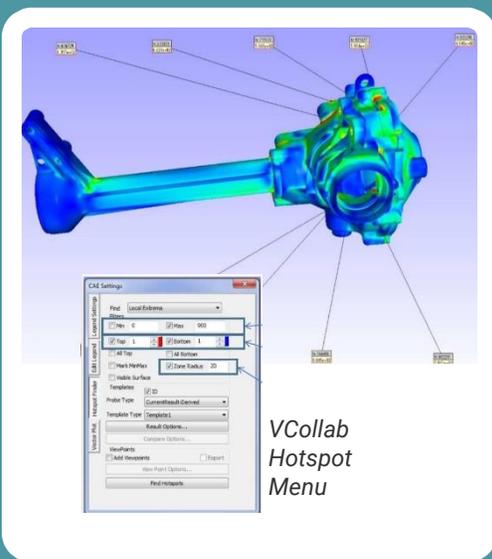


Example: Bracket Assembly Grommet Crush Study Animation

Increase the usefulness of information shared in simulation result reports using 3D animation.

End-users can see the behavior of simulation models in 3D. Animations can be created in minutes to show how parts or assemblies are behaving, even before an analysis is fully complete. Animations can be created in minutes; an example like this assembly takes roughly 5 minutes to create and can be saved in HTML files or in a standard video format.

“ From the end-user's standpoint, rich 3D simulation results, which can be explored via panning, zooming, and animation, have been very beneficial. ”



Example: Hotspot Finder

Reduce the potential for error and save analyst time by automatically identifying hotspots in simulation results.

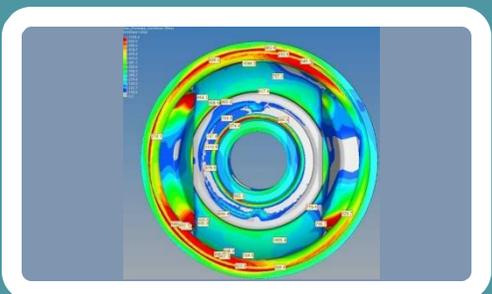
Before VCollab:

A repetitive, onerous, manual process, creating the potential for error.

With VCollab:

1. Choose result type to plot
2. Open hotspot finder
3. Define stress range
4. Define number of hotspots (top / bottom)
5. Define zone radius
6. Find hotspots automatically via data mining

“ The amount of time our analysts save is substantial. ”

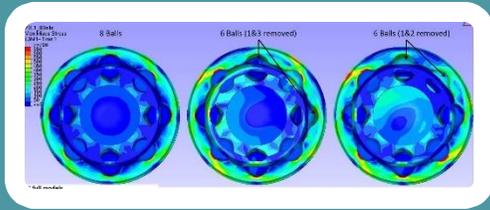


Example: Maximum Stresses from All Load Cases are Shown in One View

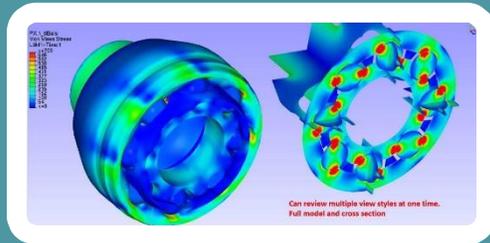
Provide greater design insight into simulation results by showing multiple stress loads in one interactive view.

Merge all stresses for all loads in a single view. In this example, 0, 45, 90, 135, and 180-degree loads are shown on a single viewpoint. This reduces the number of viewpoints the end-user must review, while keeping file sizes small.

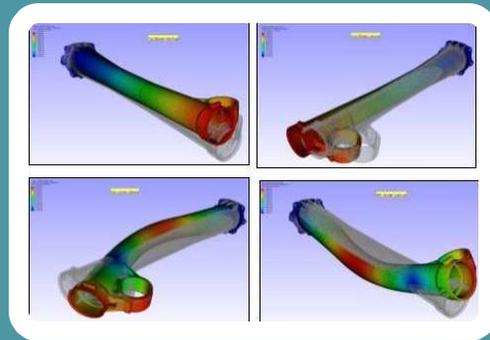
# Streamline Simulation Results Processing & Improve Simulation Insights



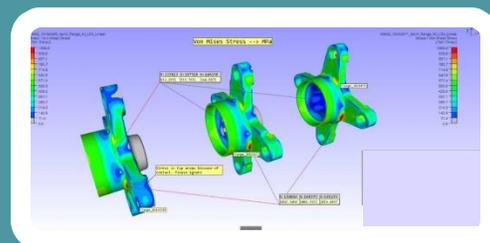
Example: Compare Multiple Design Variations in One View



Example: Review Sections and Model in One View



Example: Extracting Natural Frequencies from Torque Tubes



Example: Stresses of multiple design variants can be viewed in a single screen

## Improve comparison capabilities by showing multiple design variations one interactive view.

Explore multiple design variants (in this instance, the same part with different ball bearings removed) in one view, to compare stresses. End users can zoom, pan, and rotate to access complete information about the results. Results are viewable from within an HTML browser.

## Provide more meaningful end-user reports by showing the full model alongside sections in one interactive view.

End-users can see models alongside sections in one view, providing greater understanding of design behaviors. They can zoom, pan, animate and rotate views to access complete information. Views can be stored and shared, providing interactive insights to designers.

## Compare multiple frequencies in one interactive view.

Before VCollab:

Simulation experts created 10 different output files for end-user review. Each mode shape and animation was contained in a separate file. Viewing the files required end-users to have special software installed.

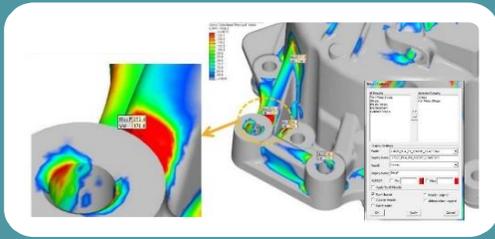
With VCollab:

All 10 animated mode shapes can be contained in a single, automatically generated file, which can be created with substantially less effort. End users can view the information in an HTML browser — no special software is required.

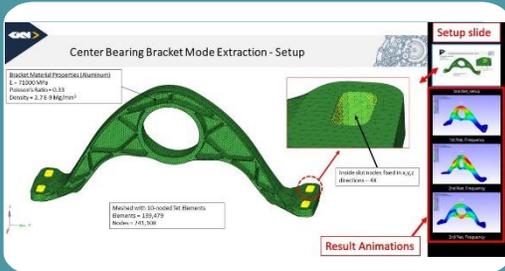
## Compare the behaviors of multiple designs in one interactive view.

Explore multiple designs (in this example three different flange designs) in one automatically generated view, to compare stress performance. Zoom, pan, rotate to access complete information about the features and results. Results are viewable from within a browser.

# Streamline Simulation Results Processing & Improve Simulation Insights



Example: Von Mises & Max Principal Stresses on an E-drive Housing



Example: Multiple Natural Frequencies for Center Bearing Aluminum Housing

## Show multiple stress results in one interactive view.

- Merge multiple stress results in a single view. In this example, both Von Mises and Maximum Principal stresses are shown in a single plot.
- Result types are selected on a simple VCollab menu. Results are viewable from within an HTML browser.

## Create HTML browser-viewable simulation results — simplify access for stakeholders.

Before VCollab:

End-users were required to install and maintain special software.

Multiple files were required to view the various FEA results.

With VCollab:

1. Embed PowerPoint report (including FEA setup) into a VCollab CAX file.
2. Create the important viewpoints of the FEA results within the CAX file.
3. Create the HTML file directly from the CAX file.
4. Deliver HTML file to the stakeholder.
5. The stakeholder, using their web browser, can pan, zoom, and rotate the contour plot to get a better representation of the results in than is possible with a 2D PowerPoint image / slide or other 2D representation.
6. Optionally, the analyst can embed 3D HTML FEA results into a PowerPoint report.

***Provides a single 3D, fully interactive and browser-viewable file to the customer, rather than multiple files. Special software no longer required by users of the simulation information.***

**VCollab** is changing the way simulation results are shared by providing actionable, high-fidelity simulation insights to your extended design team.

Learn how at [www.vcollab.com](http://www.vcollab.com)