

Reduce lifecycle cost by computationally predicting the impact of design, manufacturing, and maintenance on failure rates of rotating mechanical equipment.

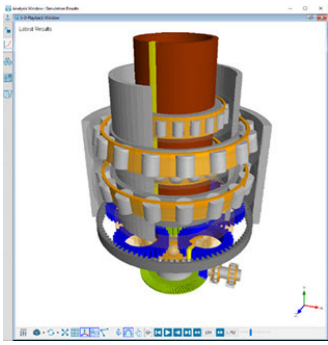
# DigitalClone for Engineering DC-E



**Inspired** by the wind and aerospace industries, DigitalClone for Engineering (DC-E) is a world-class software package that provides an advanced, patented, comprehensive capability to model drivetrains and predict their constituent components' lives under real-world operating conditions.

**DC-E** delivers a unified workflow for a multiscale analysis capability from system level analysis through microstructure modeling in a single software package unparalleled in the industry.

# SYSTEM LEVEL MODELING



DC-E implements a complete multibody-dynamics simulation environment, with body flexibility, tailored for drive system components.

## Bearings

- Cylindrical Roller
- Deep Groove Ball
- Angular Contact Ball
- Four Point Contact Ball
- Tapered Roller
- Spherical Roller

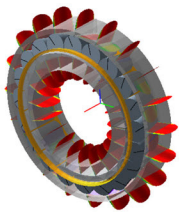
## Gears

- Spur
- Helical
- Straight Bevel
- Spiral Bevel
- Planetary

## General

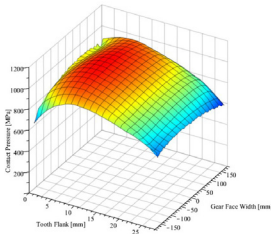
- Shaft
- Housing
- Spline

# BEARING DYNAMIC ANALYSIS



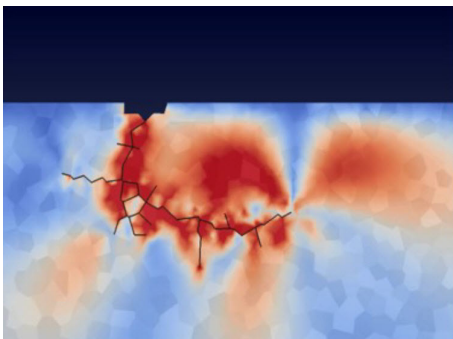
Rivalling in-house tools used by bearing OEMs, DC-E's state-of-the-art bearing analysis capability uses highly detailed models of bearing sub-components (rollers, raceways, and cage) to compute the time-dependent states and contact conditions of the bearing system. The software enables extremely high fidelity analysis, even allowing specification of measured raceway and roller profiles and measured traction curves.

# GEAR STRESS ANALYSIS



DC-E offers detailed contact and stress analysis capabilities for spur and helical gears, considering loading and microgeometry modifications to gear teeth to compute several key parameters relating to gear mesh interactions, including contact lines, contact pressure, surface velocities, static transmission error, and tooth root stresses.

# COMPONENT LIFE PREDICTION



DC-E integrates Sentient's game-changing, proprietary approach to predicting onset of rolling contact fatigue and gear tooth bending fatigue based on microstructure-level models of damage initiation and early growth. Weibull analysis utilities are built into the software for easy results interpretation and comparison. This gives users a physics-based method to virtually assess the impact to reliability of choices of:

- |                    |                    |                           |
|--------------------|--------------------|---------------------------|
| • Loading Spectrum | • Material Type    | • Residual Stress Profile |
| • Macro-geometry   | • Material Quality | • Surface Finish Quality  |
| • Micro-geometry   | • Heat Treatment   | • Lubricant Properties    |

## CONTACT US TODAY FOR A FREE DEMO!

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