

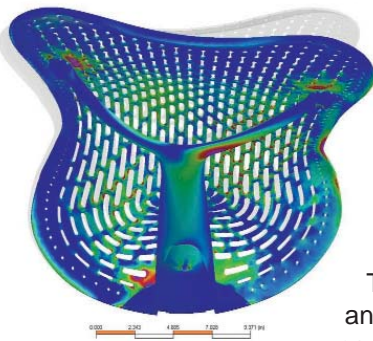
Integrated Simulation Solutions for the Consumer Products Industry

CONSUMER

To be successful in today's consumer markets you need to deliver more — more innovation, more features and more reliability. ANSYS, Inc.'s suite of engineering software solutions allows consumer products to go from concept to robust design all within a single simulation environment. The ANSYS® Workbench™ environment enables direct CAD access, geometry editing and modeling, advanced simulation, fatigue analysis, design optimization and robust design. This integrated approach directly translates into higher productivity, better product quality and faster time-to-market.

ANSYS Simulation Solutions

- ▶ ANSYS® DesignXplorer™
- ▶ ANSYS® DesignModeler™
- ▶ ANSYS® Fatigue Module™
- ▶ Parallel Performance for ANSYS
- ▶ ANSYS® Mechanical™
- ▶ ANSYS® Multiphysics™



CASE-IN-POINT

The goal was to develop the Mirra as an entirely new class of affordable office chair with ergonomic comfort for a wide range of body types and postures, easy adjustability for fit and feel, and quality consistent with the company's 12-year warranty program — all while keeping the costs as low as possible.

To determine stress and deflection, every part on the chair was analyzed with ANSYS®

Structural™. Additionally, torque curves were generated to represent the force required to support various body types in three seat positions (upright, fully tilted and midway), giving engineers insight into each design.



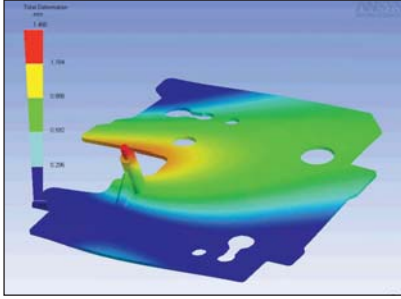
Herman Miller's new award-winning Mirra office chair was developed through virtual prototyping using ANSYS software.

"The goal of the Mirra® chair was to set a new reference point for the mid-price seating market in terms of ergonomics and adjustability. Simulation with ANSYS software certainly allowed us to meet these objectives with advanced technology that we easily integrated into our product development process. In this way, rather than merely fix problems at the last minute near the end of development, we used simulation to guide the design. As a result, the Mirra is probably one of our most successful and highly engineered products."

ANSYS consumer product applications include:

- ▶ Appliances such as refrigerators and washing machines
- ▶ Children's toys including injection-molded or blow-molded plastic
- ▶ Recreational vehicles such as scooters and bicycles
- ▶ Cell phones, computers and other consumer electronics
- ▶ Furniture including chairs, tables, shelves and storage cabinets
- ▶ Lawn and garden items including tractors, snowblowers and ladders

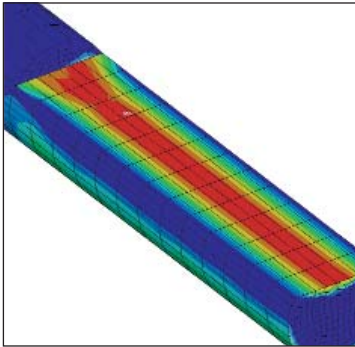
– **Larry Larder**
Director, Engineering Services
Herman Miller, Inc.



CASE-IN-POINT

Technology and services enterprise Xerox Corporation of Stamford, Connecticut, engineered an innovative digital printing system by employing ANSYS® and DesignSpace® software to evaluate alternatives and refine design in the conceptual stage of development. Simulation-based methods have helped to decrease the number of prototype testing iterations, each costing tens of

thousands of dollars and weeks of time. In the end, development time and costs were reduced. But more significantly, Xerox continues its mission toward achieving Six Sigma quality standards aimed at driving higher levels of customer value and financial benefits across Xerox.



ANSYS Mechanical was used by International TechneGroup Incorporated in a simulation-driven design approach for developing parts such as this snowthrower auger shaft.

CASE-IN-POINT

ANSYS software was essential in the simulation-driven design approach used in analyzing and developing components and assemblies for the Murray® Power 2 Steer snowthrower. Parametric capabilities allowed Murray to quickly change models to study alternatives without remeshing from scratch. The ANSYS software worked extremely well with other packages, integrating structural analysis into a virtually seamless product development process from concept through release to manufacturing.



About ANSYS, Inc. Solutions

ANSYS designs, develops, markets and globally supports engineering simulation solutions used to predict how product designs will behave in manufacturing and real-world environments. Its integrated, modular and extensible set of solutions addresses the needs of organizations in a wide range of industries. ANSYS solutions qualify risk, enabling organizations to know if their designs are acceptable or unacceptable — not just that they will function as designed. ANSYS helps organizations achieve:

- Innovative and high-quality products and processes
- Fewer physical prototypes and test setups
- Faster return on investment due to reduced development time
- A more flexible and responsive information-based development process, enabling the modification of designs at later stages of development
- A front-end simulation strategy that offers a superior method for bringing products to market in less time and with fewer costs

About ANSYS, Inc.

ANSYS, Inc., founded in 1970, develops and globally markets engineering simulation software and technologies widely used by engineers and designers across a broad spectrum of industries. The Company focuses on the development of open and flexible solutions that enable users to analyze designs directly on the desktop, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing and validation. Headquartered in Canonsburg, Pennsylvania, U.S.A., with more than 25 strategic sales locations throughout the world, ANSYS, Inc. and its subsidiaries employ approximately 600 people and distribute ANSYS products through a network of channel partners in over 40 countries.

The ANSYS Advantage

ANSYS software provides customers with a competitive advantage:

- ▶ Ability to factor in more than one physics
- ▶ ANSYS Workbench, which provides a unified product development environment offering integration across a wide range of design processes — ranging from geometry modeling and editing, meshing and pre-processing, advanced analysis (structural, thermal, electromagnetics, CFD, etc.) and robust design optimization
- ▶ Providing industry's broadest range of physics capability in one integrated analysis environment
- ▶ Advanced meshing solutions to efficiently address high aspect ratio geometry commonly associated with consumer product applications
- ▶ Advanced material models and contact types for simulating plastics, rubber, sliding surfaces and large deformations



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