3S SOLIDWORKS

3DEXPERIENCE®

SOLIDWORKS EDUCATION
INNOVATIVE LEARNING FOR DESIGN
AND PRODUCT DEVELOPMENT

eBook

3S DASSAULT SYSTEMES

POWERFUL, EASY-TO-USE, INTUITIVE EXPERIENCE

3D design and more with SOLIDWORKS Education Program

In today's competitive job market, CAD professionals don't just design—they simulate, innovate, visualize, and communicate—to advance new ideas and their careers. The SOLIDWORKS® Education Program provides powerful, engaging, hands-on software to understand and develop designs for the real world. The integrated 3D software, curriculum, and lessons make design development easy to learn, easy to teach and exciting to use.

Give your students a career advantage

SOLIDWORKS Education Program offers an extensive suite of proven tools—engineering design, mechanical and flow simulation, sustainable design, electrical, documentation, visualization—in one, integrated, easy-to-learn software package.

For Educators – Enhance student learning with tailored curriculums and study aids

For Students – See how SOLIDWORKS speeds up design projects

For Researchers – Rely on SOLIDWORKS to accelerate discovery and new levels of performance

With SOLIDWORKS Education Program, you have access to 3D development tools used by millions of engineering and design professionals around the world. SOLIDWORKS helps engineers and designers in any industry meet the demand to create innovative, high-quality products—in less time and at lower cost.

· Conceptualize detailed designs

· Document designs and parts lists with precision

· Run design analysis and verification

· Create dynamic technical illustrations and visualizations for project presentation

· Use product data management to track project files

SOLIDWORKS EDUCATION

This sweeping CAD and engineering development teaching tool features 3D software plus a broad curriculum of exercises and interactive courseware. SOLIDWORKS Education is an inclusive resource for teaching 3D mechanical CAD, design validation, and data management. SOLIDWORKS educational products are utilized at over 80% of the world's top engineering schools, giving students and researchers the functionality and ease of use to become productive almost immediately.

With SOLIDWORKS Education Program, students and instructors can focus on what's really important—fostering new ideas, solving problems, working as a team and innovating products.

SOLIDWORKS Education Edition includes:

- SOLIDWORKS 3D Design
- SOLIDWORKS Simulation
- SOLIDWORKS Flow Simulation
- SOLIDWORKS Plastics
- SOLIDWORKS Electrical
- SOLIDWORKS MBD
- SOLIDWORKS Composer

- SOLIDWORKS CAM
- SOLIDWORKS PDM*
- SOLIDWORKS Visualize
- eDrawings®
- MySolidWorks for Students

*PDM Standard is included in the SOLIDWORKS Education Edition. PDM Professional is available for purchase. Please contact your local reseller.

SOLIDWORKS 3D DESIGN

SOLIDWORKS Premium provides extensive 3D solutions with powerful capabilities for design, simulation, motion, and design validation, advanced wire and pipe routing, reverse engineering and much more.

Experience all the benefits of a complete 3D design solution with SOLIDWORKS Premium:

- Create fully detailed parts, assemblies, and production-level drawings

- Test product performance with rich simulation capabilities, including time-based motion and linear static analysis

- Resolve complex assembly issues and help ensure manufacturability with tolerance stack-up analysis and cost analysis

- Simplify design tasks with tools like Advanced Surface Flattening

- Reverse engineer to analyze and identify key features

- Document layouts for electrical wiring, piping, and tubing

- Work with 3D scanned data
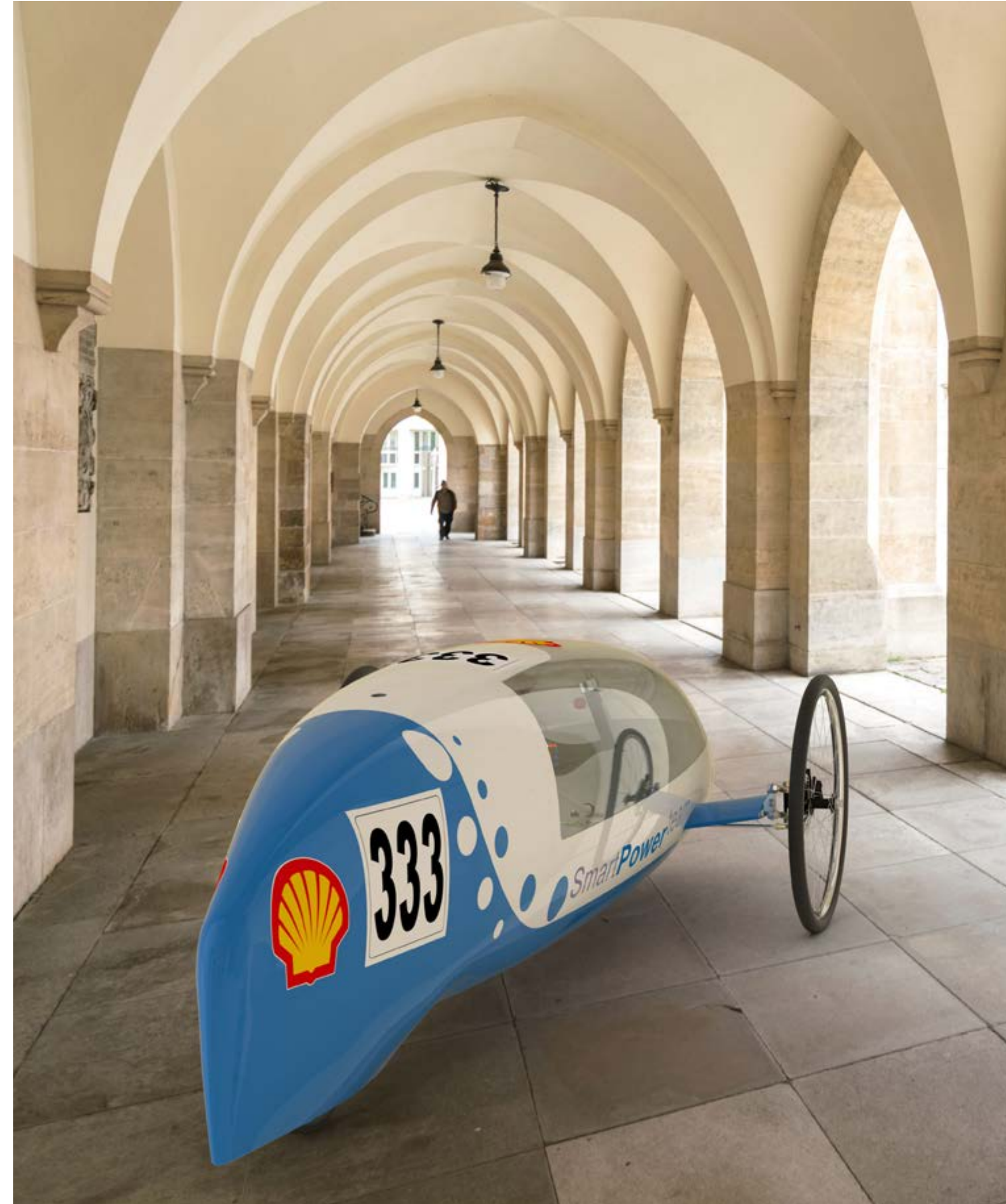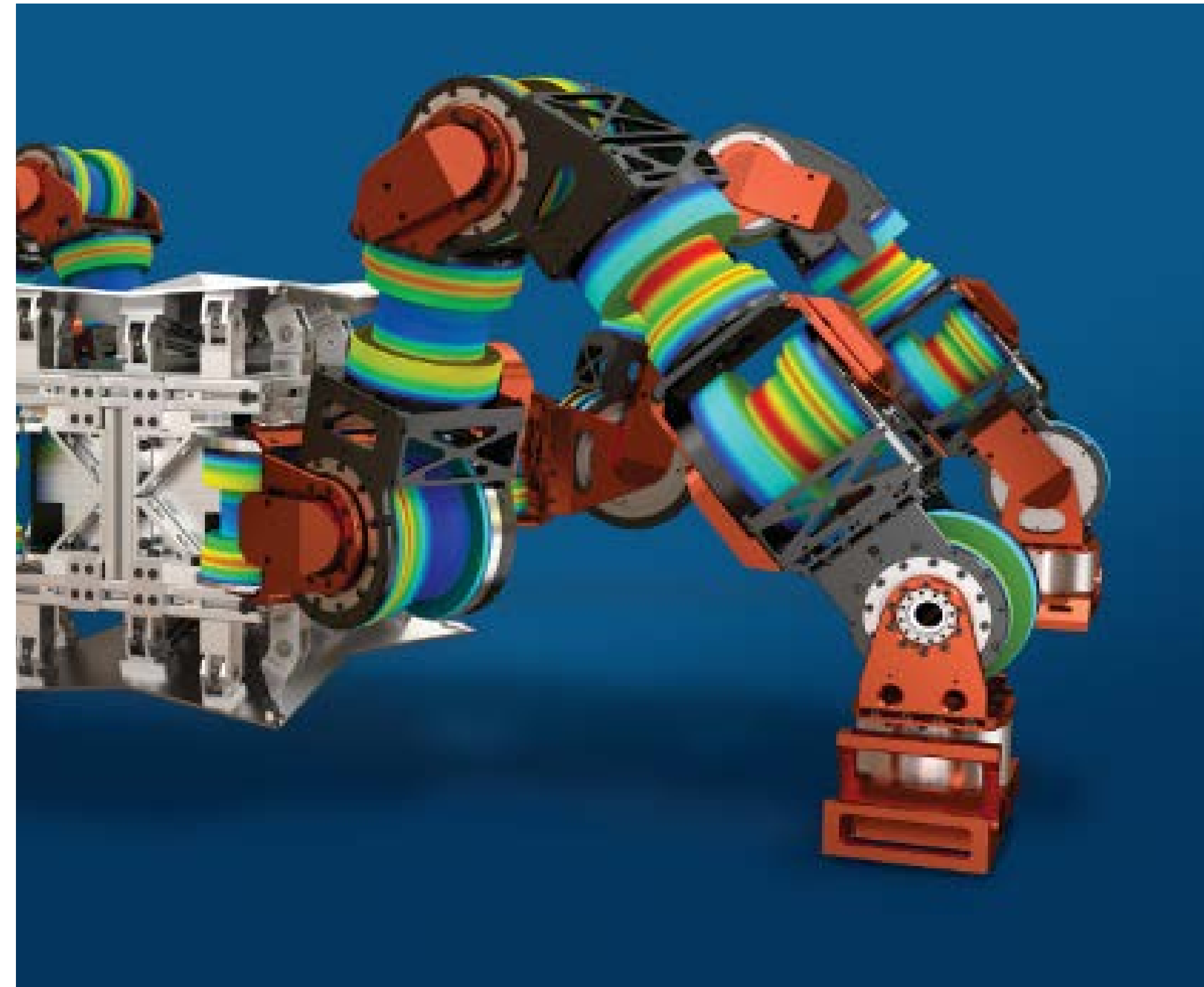
SOLIDWORKS SIMULATION

Every engineer and designer can simulate and analyze design performance with fast, easy-to-use **SOLIDWORKS Simulation** CAD-embedded analysis solutions. You can quickly and easily employ advanced simulation techniques to test performance while you design.

The powerful tools of SOLIDWORKS Simulation Premium provide valuable insights to help engineers and designers improve reliability cost-effectively, no matter the material or use environment involved. You can efficiently evaluate designs for nonlinear and dynamic response, dynamic loading, and composite materials.

SOLIDWORKS Sustainability provides screening-level Life Cycle Assessment (LCA) of environmental impacts of the full design, with seamless integration with your design process. Conduct LCA directly within the SOLIDWORKS 3D design window. The diverse tools include:

- Parts assessment

- Alternative materials search

- Environmental impact dashboard

- Capability to assess both parts and assemblies

Use parameters such as transportation mode and distance, assembly energy, and use-phase energy consumption. Flexible inputs, such as recycled content level and end-of-life scenarios, enable more detailed assessments. You can even perform time-dependent environmental comparisons using varying lifetimes of different design solutions.

SOLIDWORKS Simulation solutions include these types of analysis:

- Drop test
- Frequency
- Finite element
- Structural
- Thermal structural
- Vibration
- Linear stress
- Plastic and rubber part
- Fatigue

SOLIDWORKS FLOW SIMULATION

SOLIDWORKS Flow Simulation is an intuitive Computational Fluid Dynamics (CFD) solution embedded within SOLIDWORKS 3D CAD that enables you to quickly and easily simulate liquid and gas flows through and around your designs to calculate product performance and capabilities.

With integrated CFD tools, you can efficiently analyze the effects of fluid flow, heat transfer, and related forces on your projects. You can also process multiple "what if" scenarios to help you optimize designs quickly.

SOLIDWORKS PLASTICS

SOLIDWORKS Plastics brings easy-to-use simulation of injection molding directly to the design of plastic parts and injection molds, as well as advanced CAE analysis. It simulates the flow of melted plastic during injection molding to predict manufacturing-related defects on parts and molds. You can quickly evaluate manufacturability while you design, to eliminate costly mold rework, improve part quality, and accelerate time to market. A Results Adviser provides troubleshooting steps and practical design advice that help users diagnose potential problems and find ways to avoid them.

Easy to learn and use, SOLIDWORKS Plastics is fully embedded within the SOLIDWORKS CAD environment, so you can analyze and modify designs while you optimize for form, fit and function.
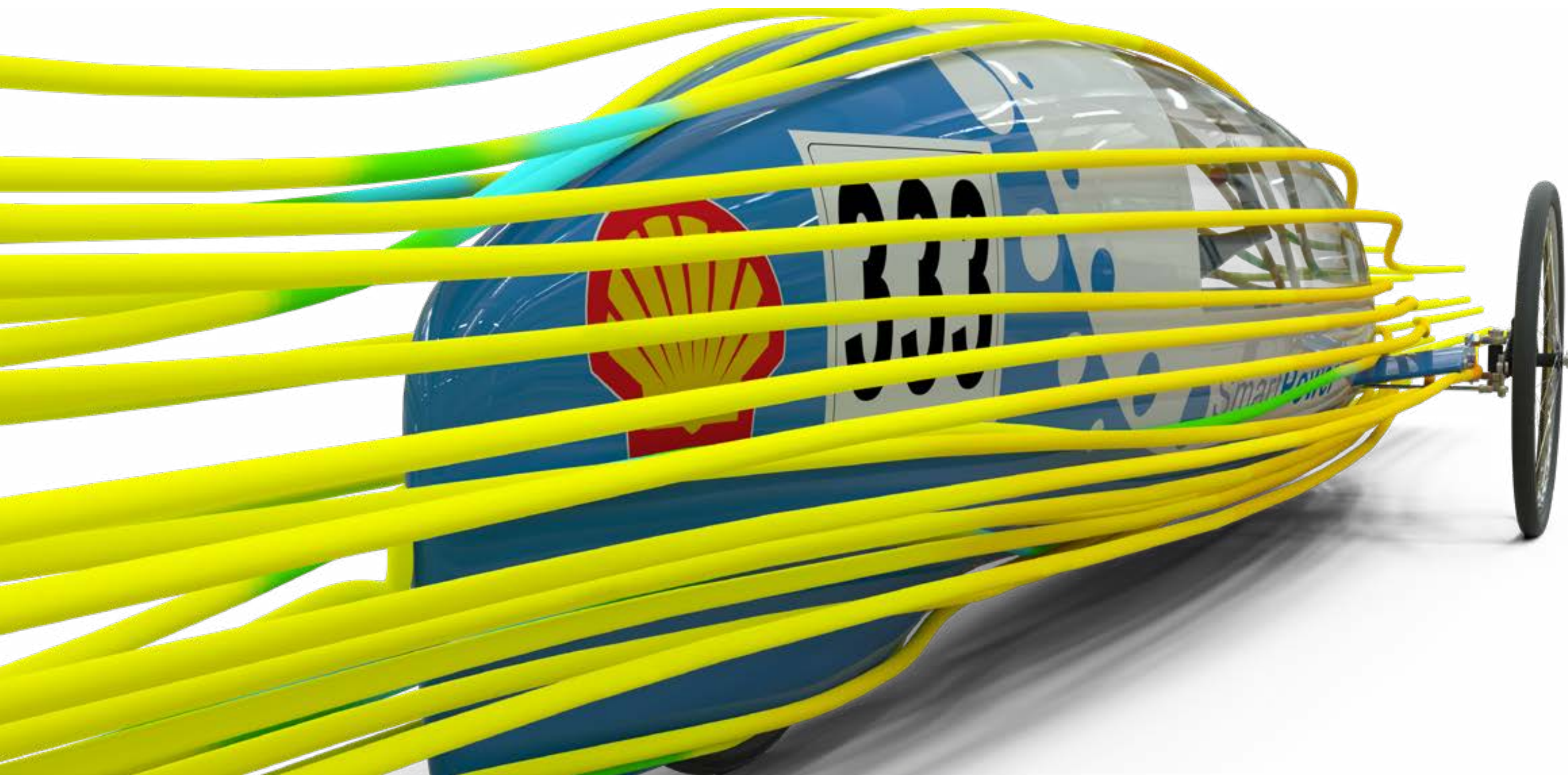
SOLIDWORKS ELECTRICAL

SOLIDWORKS Electrical solutions are integral parts of the SOLIDWORKS design and simulation portfolio. A consistent, powerful, intuitive set of electrical design capabilities are fully integrated with SOLIDWORKS. Engineers and designers can establish integrated, embedded electrical systems design early in the design process and avoid costly rework throughout.

SOLIDWORKS Electrical Professional combines electrical schematic functionality with a powerful, stress-free, easy-to-use suite of collaborative schematic design tools and 3D modeling capabilities. You can integrate electrical schematic design data with the SOLIDWORKS 3D model of a machine or other product—bidirectionally and in real time—supporting both the electrical and the mechanical design in one package.

Easily share data between electrical CAD (ECAD) and mechanical CAD (MCAD) designers using the **CircuitWorks™** tool in SOLIDWORKS. CircuitWorks enables users to share, compare, update, and track electrical design data so they can more quickly resolve electrical-mechanical integration problems.

SOLIDWORKS MBD

SOLIDWORKS MBD (Model-Based Definition) is an integrated drawing-less manufacturing solution for SOLIDWORKS, guiding the manufacturing process directly in 3D instead of using traditional 2D drawings.

SOLIDWORKS MBD helps you define, organize, and publish 3D product manufacturing information (PMI), including 3D model data in industry-standard file formats (such as SOLIDWORKS files, eDrawings, and 3D PDF). It guides the manufacturing process directly in 3D, helping to streamline production, cut cycle time, reduce errors, and comply with industry standards.

- **Define 3D PMI**, such as dimensions, tolerances, model data, surface finish, weld symbols, bill of materials (BOMs), tables, notes, and other annotations

- **Organize 3D PMI** along with 3D models in a clean, structured, and easy-to-search fashion

- **Customize 3D output templates** for multiple deliverables, such as engineering drawings and requests for quote (RFQ), and groups, such as Operations, Manufacturing, QA, and Procurement

- **Publish 3D data and PMI** in industry-standard file formats, such as 3D PDF and eDrawings

- **Support industry standards**, such as Military Standard Share, and archive 3D data directly to free up time

SOLIDWORKS COMPOSER

SOLIDWORKS Composer™ enables you to easily use existing 3D design data to rapidly create and update high quality graphical assets that are fully associated with the 3D design. Users can routinely create 2D and 3D graphical content for product communication and technical illustrations in parallel with product development, simplifying the documentation process and accelerating time to market.

- Synchronize technical communication with your design process so graphic elements update automatically when there are changes

- Develop your technical communication deliverables earlier and keep them current, instead of having to wait until the design is complete

- Show your product before it's built using 2D and 3D illustrations and interactive animations

- Make technical communication more visual and effective for manufacturing and service teams, suppliers, and customers, regardless of language and culture, reducing translation needs
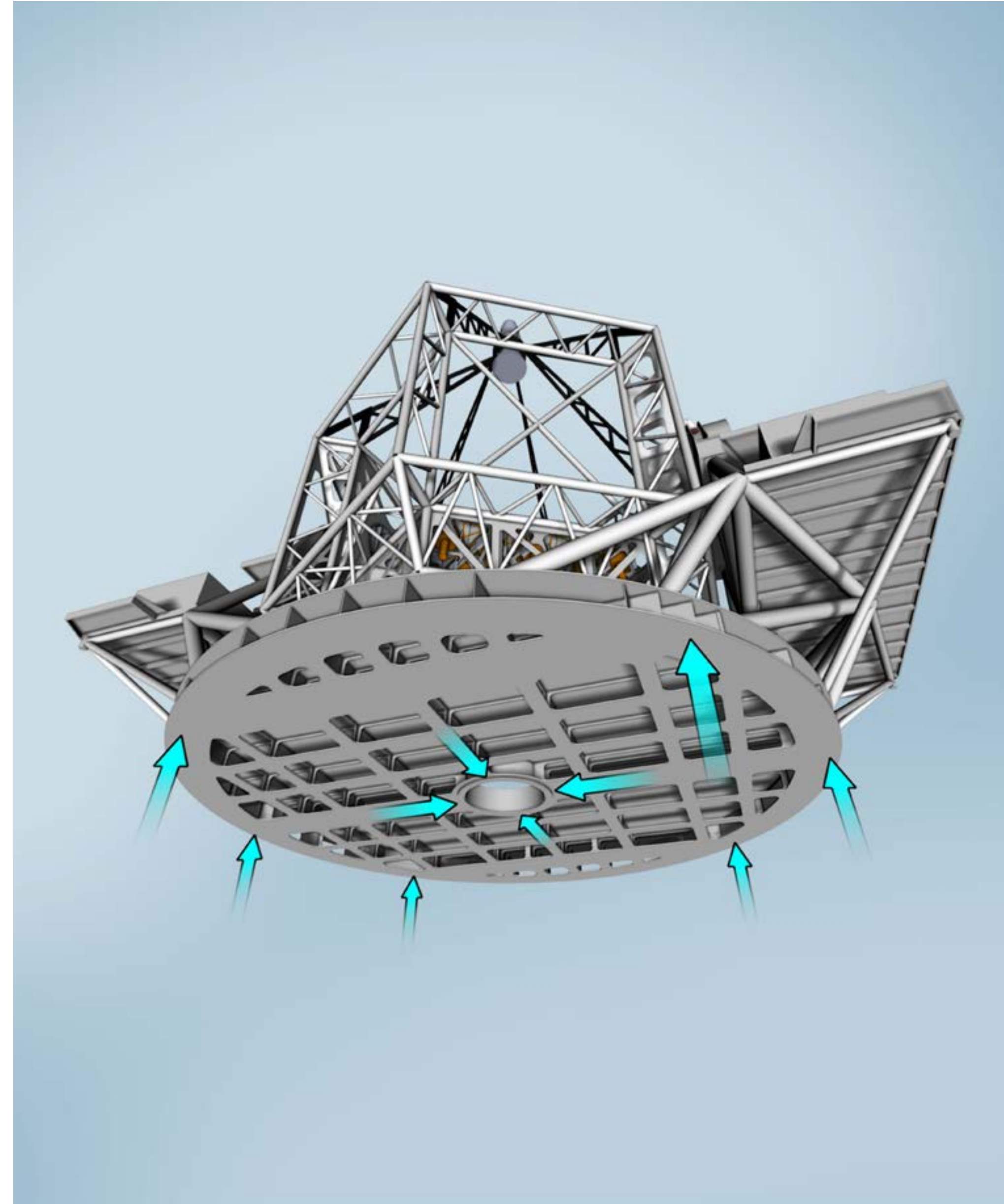
SOLIDWORKS CAM

SOLIDWORKS CAM lets you prepare your designs for manufacturability earlier in the development cycle. You can speed up the programming process with SOLIDWORKS CAM's rules-based machining prowess, allowing you to teach the system your preferred standard machining strategies. Assigning machining strategies based on design tolerances means a reduction in errors and improvement in quality throughout the machining process. SOLIDWORKS CAM delivers powerful, knowledge-based CNC programming for part and assembly milling and turning that provides a single, integrated solution from design to manufacture.

- Catch design errors and new part setups through Automatic Feature Recognition with rules-based machining

- Quote components quickly using company standards captured as rules

- Easily transition to CAM and simplify collaboration with single design and program environments

- Quickly make adjustments as design, materials, and tolerances change with Tolerance-Based Machining

- Take full control to define machinable features within the CAD/CAM environment with Feature Recognition

- Utilize 3 + 2 programming, a machining technique where a three-axis milling program is executed with the cutting tool locked in a tilted position using the five-axis machine's two rotational axes

- Automatically make adjustments to toolpaths to avoid user-defined fixtures
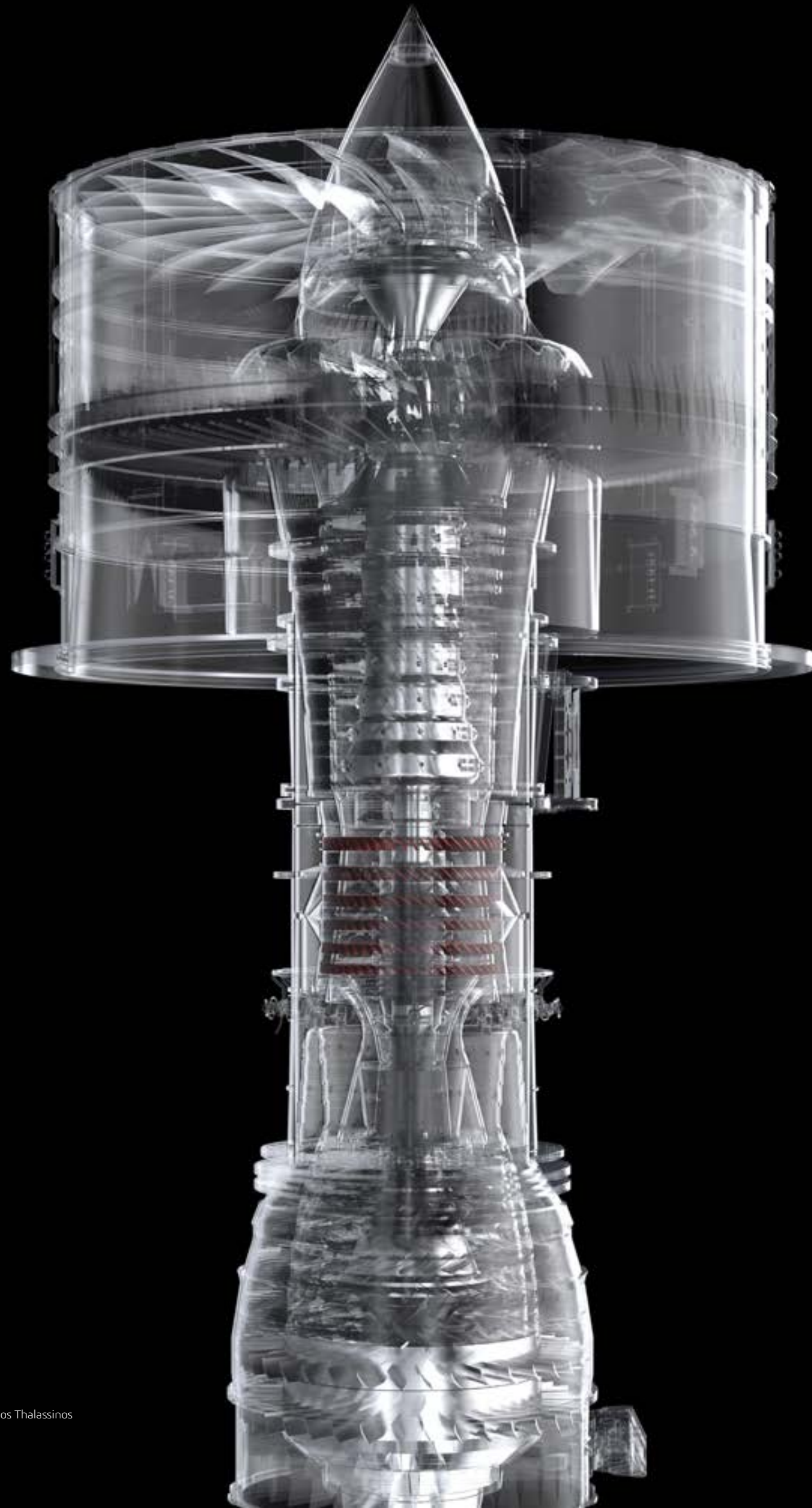
SOLIDWORKS PDM

SOLIDWORKS PDM* (Product Data Management) solutions keep your design data under control. Storing and organizing CAD data and supporting documents is easy and helps your team collaborate, without having to worry about version control or data loss.

Store files in a central vault, check them out, do your work, and check them back in, creating a new version and keeping everyone in the loop. Data stores can be replicated locally and synced automatically for easy access from anywhere in the world. SOLIDWORKS PDM saves time, securely controls access to data, and allows all team members to work on projects whenever and wherever, with real-time updates on design changes.

You can increase productivity and collaboration with SOLIDWORKS PDM's automated workflows; automatic notifications and a streamlined approval process remove bottlenecks and keep everyone up-to-date on projects. With SOLIDWORKS PDM, your data and workflows are optimized, organized, and under your control.

*PDM Standard is included in the SOLIDWORKS Education Edition. PDM Professional is available for purchase. Please contact your local reseller.

SOLIDWORKS VISUALIZE PROFESSIONAL

SOLIDWORKS Visualize Professional combines industry-leading rendering capabilities with design-oriented features and workflows for easy, fast creation of visual content. A simple, intuitive interface enables users of any skill level to easily develop rich, photo-quality content for enhanced 3D decision-making. Import SOLIDWORKS, Autodesk® Alias®, Rhino®, SketchUp®, and many other CAD formats. Then create compelling scenes and the most realistic content possible.

You can create convincing, lifelike movies and images, show your product in multiple visual backgrounds, and accurately simulate real-world lighting and advanced materials, while scaling rendering performance to meet the highest demands. Easily add movement, create 360-degree spins, or animate cameras, materials, models, or even the sun. You can even create photo-realistic virtual reality content (images and videos) for a truly immersive experience.

Changes are displayed in real time for maximum flexibility and speed. With SOLIDWORKS Visualize connected directly with SOLIDWORKS CAD, you can automatically update your models using the Live CAD Update feature for a truly seamless workflow.

eDRAWINGS

eDrawings is the premier 2D, 3D and AR/VR design communication tool for stakeholders in the design-to-manufacture process as well as for external prospects and customers. Delivering a rich collaboration tool set, eDrawings enables everyone to speed up their design processes, communicating with clarity and precision to get to market faster. CAD and non-CAD users can share 3D models, interrogate them, create markups and then share these markups to accelerate the whole design process.

The augmented reality (AR) and virtual reality (VR) capabilities of eDrawings extend its use into virtual product evaluations by design teams and customers. AR/VR capabilities are available in Windows desktop professional and mobile versions of eDrawings.
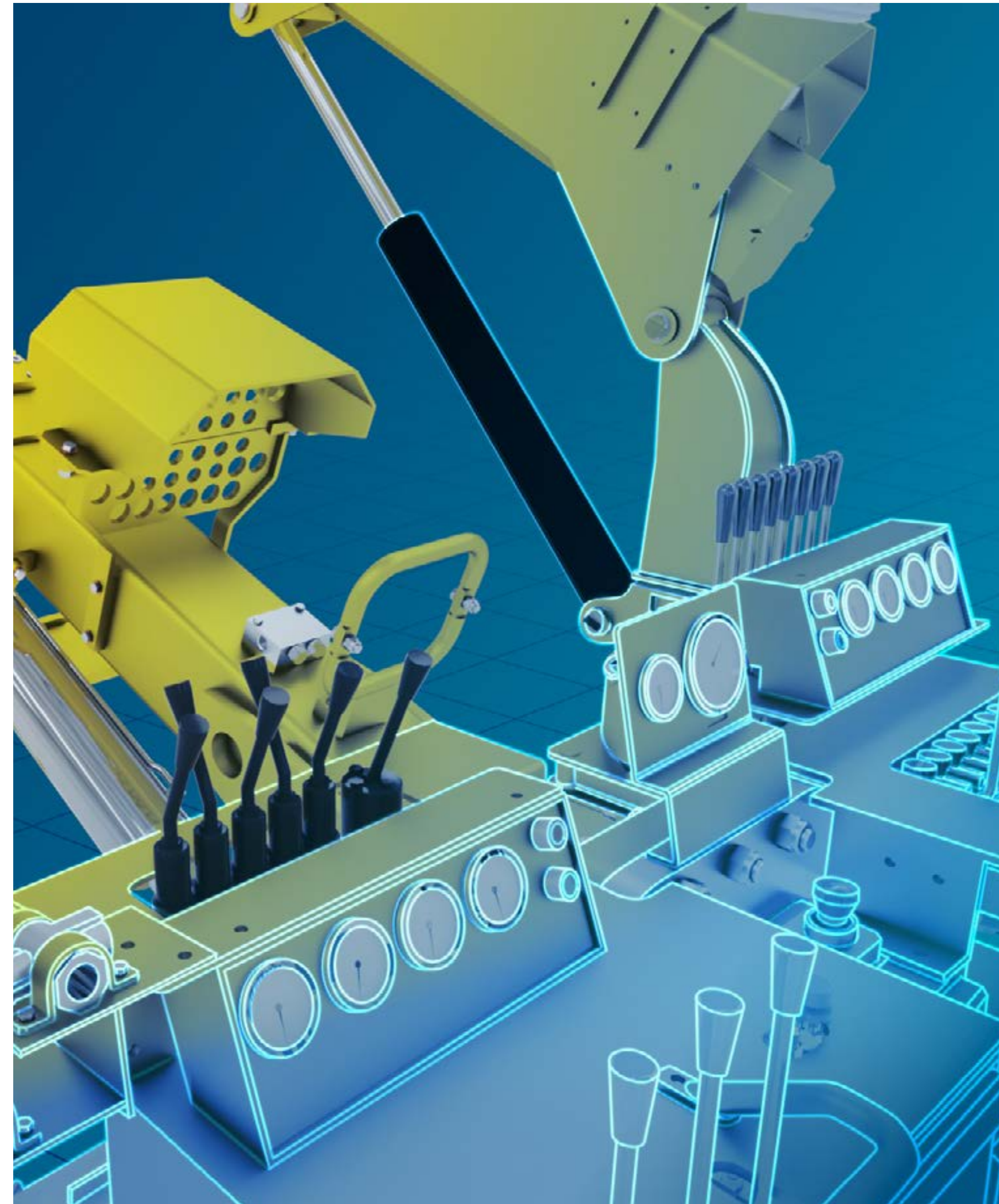
STUDENT ACCESS BEYOND THE CLASSROOM

Design anytime, anywhere with SOLIDWORKS Student Access

The SOLIDWORKS Student Access Initiative connects students to SOLIDWORKS software outside the classroom or laboratory anytime from anywhere. With innovative licensing for SOLIDWORKS Education Edition, students can log on from anywhere on campus, from home, even away from home.

Schools that participate in the Student Access Initiative give students the ability to work on assignments remotely or off-hours, which increases student usage, facilitates distance learning, and enables off-site collaboration and independent study.

Student Access licenses are FREE. Any qualifying institution can provide licenses to students for off-campus use, freeing up lab resources and allowing students to work from anywhere. Student Access licenses can be used to support independent study courses, distance learning programs, and articulation agreements. Some do not even require connecting to the school server.

Instructors: Instructors can assign homework, prepare remotely, use licenses for distance learning or independent study students, prepare for their own certification exams, and practice SOLIDWORKS skills during school breaks.

Students: Students can work from anywhere, complete assignments during off-hours, use licenses for independent study or distance learning courses, articulate with college programs, prepare for certification exams, build personal portfolios, and participate in student competitions.

ADDITIONAL RESOURCES

For more information about SOLIDWORKS Education, please visit us at the links below:

solidworks.com/education

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