Virtual Design
CATIA Mechanical Product Creation

Reducing design-to-manufacturing cycles requires high productivity, flexibility, and excellent collaboration. Even in a wide geographical context, good collaboration plays an essential role in allowing design changes without compromising design accuracy.

CATIA Mechanical Product Creation makes it possible to design a variety of products from simple to highly complex. It covers a wide range of operations such as part design, part positioning, automated mechanisms design, live kinematic simulation, assembly drawing generation, and photo-realistic image creation. Based on the V6 collaborative platform, it enables a truly concurrent design on the same assembly and automates the design process with unbreakable relational design.

Key capabilities

Supports concurrent design with integrated PLM assembly tools
Mechanical Product Creation leverages concurrent engineering by enabling different users from different disciplines (welding, assembly, drafting, etc.) to work simultaneously on the same assembly. Global updates are made faster because only changed links trigger updates.

Industry-proven relational design for effective design automation
Publications are a unique and powerful method to define which visible interface makes it possible for a part to be stably connected with other parts or assemblies. This makes it possible to switch parts and assemblies and even to substitute assemblies for parts to cope with design evolution, thus reducing design time.

Powerful design environment from strong partnerships with industry leaders
A design-to-manufacturing environment yields a process-centric solution based on powerful wireframes, surfaces, and solid creation tools. With automated dress-up features, a part can be drafted in one single operation and its sharp edges can be filleted in one shot, making it

Customer benefits

- Reduce design time by enabling truly concurrent engineering on complex parts
- Offer quick design alternatives with industrial-proven reliability and versatility
- Design high quality mechanical parts across all industries
- Position parts automatically for predictable design change propagation
- Automate motion definition, easing check and validation
- Create products for symmetrical assemblies with productivity and agility
- Reduce design cycle times with automated design collaboration

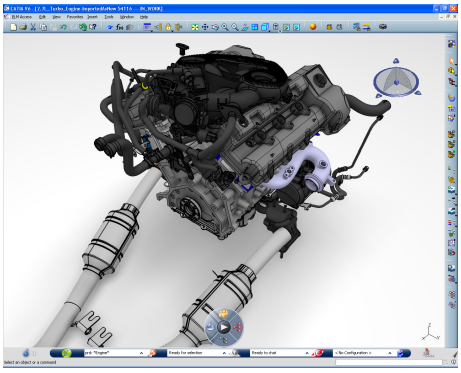
ready for manufacturing. Extensive catalogs and user-defined features make the design suitable for any manufacturing intent.

Automatic parts positioning with contextual constraints
Based on the respective part publications, the constraints creation becomes as simple as drag and drop. Parts snap together according to this positioning definition with greater safety as it depends on the parts interfaces. In addition, assembly constraints can be contextual to leaf parts, facilitating collaborative work.

Kinematic mechanisms automatically defined from assembly positioning
Kinematic mechanisms can be generated automatically from positioning constraints, ensuring productivity and consistency between the product design and the motion definition. The solver enhances productivity as well, as it can drive under-constrained mechanisms, preventing the user from wasting time. Easy-to-use animations dramatically reduce the need for physical prototypes and offer an early assessment of serviceability requirements.

Avoid repetitive work in symmetrical assembly management
Supports both basic-use cases and advanced scenarios. The user can generate an assembly symmetric to another assembly in only one click. For advanced scenarios, the specifications are managed with unsurpassed flexibility, generating the associative symmetric structure of an assembly, mirroring each geometric shape and/or its position independently. Stored in the database instance per instance, the symmetry specifications enable concurrent engineering and partial open.

Automated design collaboration
One part can be designed by several designers, sharing and trading features in a controlled process. This process is structured by collaborative design iterations, dramatically reducing design cycle time.



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As a world leader in 3D and Product Lifecycle Management (PLM) solutions, Dassault Systèmes brings value to more than 100,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire lifecycle of products from conception to maintenance to recycling. The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing - ENOVIA for global collaborative lifecycle management, and 3DVIA for online 3D lifelike experiences. Dassault Systèmes shares are listed on Euronext Paris (#13065, DSY.PA) and Dassault Systèmes ADRs may be traded on the US Over-The-Counter (OTC) market (DASTY).

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