Virtual Design
CATIA Piping and Tubing Design

CATIA Piping and Tubing Design creates and manages the physical designs of piping and tubing systems using industry standards and specifications, within the context of a full digital mock-up.

It also provides tools to define the physical system of both rigid and flexible pipes and tubes from basic routing definition to detailed design. This is made possible with the help of intelligent and automatic part placement based on standard and specification rules that comply with company knowledge. In addition, its advanced tools make it possible to quickly query design information and generate reports based on any component parameters. A full digital mock-up ensures design precision while saving time, minimizing errors, and reducing expenses. Together with CATIA V6’s data management offerings, this product empowers users to manage their systems all the way from functional design down to detailed design.

Customer benefits

• Model and customize objects with "smart" features
• Design with a highly interactive and intuitive user interface
• Integrate business rules
• Explode piping and tubing objects, attributes, and relationships in the V6 database
• Access full traceability with RFLP approach

Key capabilities

Creation and management of pipes and tubes
Users can create pipes and tubes with standard industry attribute information. In addition, designers can create their own attributes to be included in pipes and tubes definitions.

Provides user-defined ID rules for objects
Designers can define ID rules to specify their company-specific naming formats and conventions per objects. Additionally, ID rules can be assigned to individual classes of objects. When objects are created in the design document, their ID’s will be generated automatically using the user-defined ID rules.

Function-driven piping and tubing part placement
Users can capture the design intent for selected physical parts to ensure that modification scenarios are possible. Designers can layout and model a 3D piping or tubing network either manually or automatically. If parts are based on user-defined rules, such as branching or turning rules, much of the layout can be created automatically to optimize the total design process.

Evolution from preliminary to
detailed design layout
Preliminary layouts can evolve into detailed designs using standard piping parts and specification catalogs. Using this methodology, designers can progress to the final layout stage with greater speed and accuracy.

Integrated dynamic rule triggering
During the preliminary and detailed design process, rule-based design checking actions are automatically launched to validate the proposed design. Users can modify existing samples, or create their own rules, to control the graphic representations of objects via knowledgeware rules. After design creation, the user can still validate the design using a dedicated manufacturability checking command.

Intelligent modification of piping and tubing objects and routes
Users are able to revise layouts and change route segments and nodes using offset and clearance capabilities. Piping and Tubing parts and routes can be directly manipulated by pushing and stretching points, segments and extremities. Connectivity is managed through connect and disconnect tools. Piping and Tubing part modifications propagate changes that will impact the design intent. Similarly, a specification change will force a new part selection and placement.

Query and analysis of piping and tubing parts and configurations
Key properties are readily available to the user at element pre-highlight. Users can perform a wide variety of queries and/or analysis to inquire about the specific properties of any object in the design document. Through a network analysis tool, designers also have the ability to query and analyze tubing connectivity.

Customizable report definition and drawings
A dedicated report definition capability allows the user to tailor the definition of the reports based on company standards. This definition can be accessed as needed, any time during the design process. Specific tools also allow the customization of the drawing format for single and double line display. The user can customize corporate data and define rules that will enforce company standards, such as defining piping and tubing specifications and geometry definitions, as well as equipment catalog building.

About Dassault Systèmes
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).