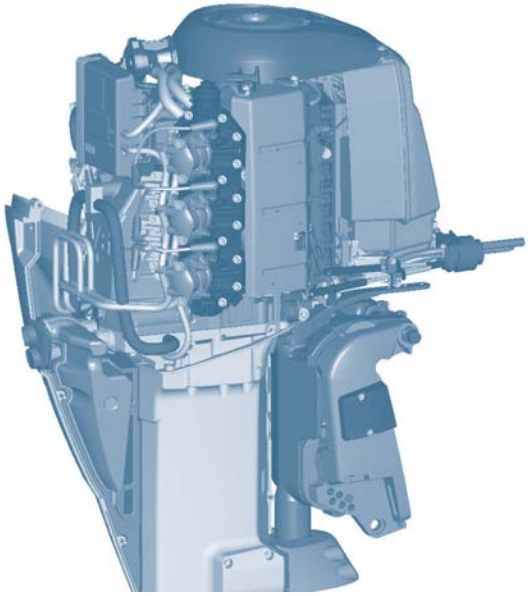
Pro/ENGINEER® Piping Design

Fully Automate the Pipe Routing Process

Product complexity is growing rapidly today due to customers' increasing demands and diverse product requirements. This means designers are now challenged with adding more complex piping schematics to a variety of new product designs. What's more, technology has advanced such that engineers now have numerous options in material selection and piping design layout. Piping designers need a CAD solution that is current with today's technology, yet flexible enough to accommodate every design option available in the market.



Despite the complexity and space constraints of this outboard motor, Bombardier Recreational Products was able to instantly determine the optimal pipe routing path using Pro/ENGINEER Piping Design.

Pro/ENGINEER Piping Design is the perfect 3D solution because it supports all types of industries and styles of piping–streamlining the entire design process. Whether you're designing products with hydraulic or pneumatic hoses, high and low pressure tubing, copper work, or even large bore pipes, Pro/ENGINEER Piping Design can handle the job, no matter how intricate.

Determining the routes of pipes can be a difficult, time-consuming task. Beginning with the creation of a physical prototype and then manually routing the pipes through it, this long, tedious process is typically error-prone. Even worse, it requires building frequent physical prototypes. With Pro/ENGINEER Piping Design, these problems can be avoided.

Pro/ENGINEER Piping Design enable designers to fully automate the pipe routing process. Designers no longer have to build physical prototypes and struggle through the trial and error process; they can determine, virtually, the optimum path of the pipes in the model. In addition, the designer can create rules based on company best practices or corporate policies. The software will then verify that this optimum path is compliant with established rules. Plus, the designers have access to a library of standard fittings, which can be reused from product to product, reducing time-to-market and increasing designer productivity.

The fully associative nature of Pro/ENGINEER ensures that the pipe routing–and accompanying documentation–will automatically update with any design changes made to the model.

Key Benefits

- Minimize errors and reduce time-consuming tasks by automating the capture of all relevant system information with Pro/ENGINEER Routed Systems Designer
- Fully automate your pipe routing so you quickly get the optimum path for routing pipes and not just a quick fix
- Ensure design rules and schematic logic rules are enforced through specification-driven design
- Increase design speed through the reuse of standard fittings contained in a customizable library
- Eliminate the need for physical prototypes through virtual interference checking and automated manufacturability verification
- Enable cost-effective manufacturing through accurate documentation such as isometric drawings, bend tables, and BOMs
- Electronic interface to CNC bending machines using *.FIF allows error-free exportation of data

Features and Specifications

Accurate and Efficient Routing of Pipelines and Fittings

- Automate the creation of 3D routes from 2D schematics
- Leverage intelligent schematic information for design reuse
- Automate fitting placement based on schematic information while adhering to design rules

Comprehensive Suite of Tools for Fitting Insertion

- Search for fittings that meet the specifications of your project, so you only work with the correct pipes and fittings
- Automatically display the correct fittings based on schematic information
- Automate the placement of gaskets, flanges, elbows, and other components
- Preview the placement of the object to achieve full control over the insertion

Reinforce Pre-defined Rules through Violation Detection

- Maximums and minimums of the bend radius
- Minimum branch separation and branch angle
- Placement and missing fittings
- Flow violations

Complete Control Over Flow Directions

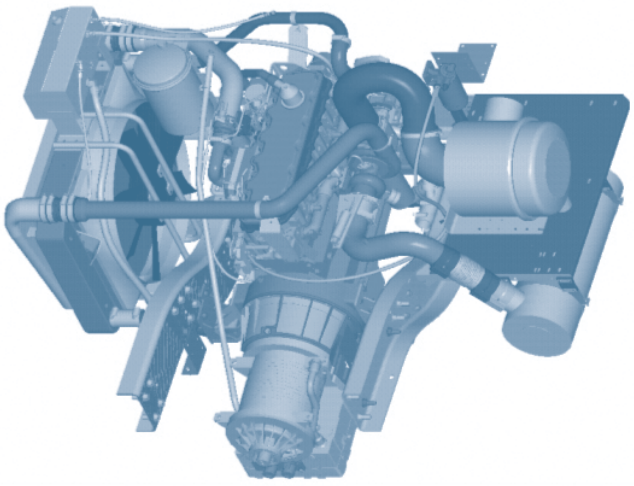
- Automatically set initial flow direction based on routing
- Easily change flow direction for a series or pipeline
- Automatically reverse directional fittings with change of flow direction

Verification of Piping Routes to Prevent Errors

- Electronically verify 3D data compared to logical data to detect missing fittings and other common missteps
- Check for design rules, such as missing gaskets, in the model
- Create automatic cut lists, bend tables, and BOMs

Easily Extract Information from the Design for Outputs

- Bill of Materials
- Bend machine and detailed fitting reports available
- Schematic consistency check
- Communication of piping system layout and detail in the form of isometric, installation, and pipe spool drawing



With Pro/ENGINEER Piping Design, you can quickly determine the best piping routes between even the most complex systems.

The Pro/ENGINEER Advantage

With the powerful associativity capabilities in Pro/ENGINEER, you know that no matter where you make a change in your design, these changes will be propagated throughout all downstream deliverables. Whether you're creating flex hosing for hydraulic applications or industrial piping for large bore pipes, with Pro/ENGINEER Piping Design you're able to create the correct piping scheme for your model, quickly and accurately. You never have to worry about working with outdated information or recreating data for later use in piping analysis. Pro/ENGINEER applications are seamlessly integrated, providing a complete product development solution from 'art to part'. This allows you to focus on value added activities such as the design and analysis of your product–not wasting your time and energy recreating the model to be used for different applications. The integration of Pro/ENGINEER modules also eliminates errors that can occur when models are translated or recreated for another program.

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