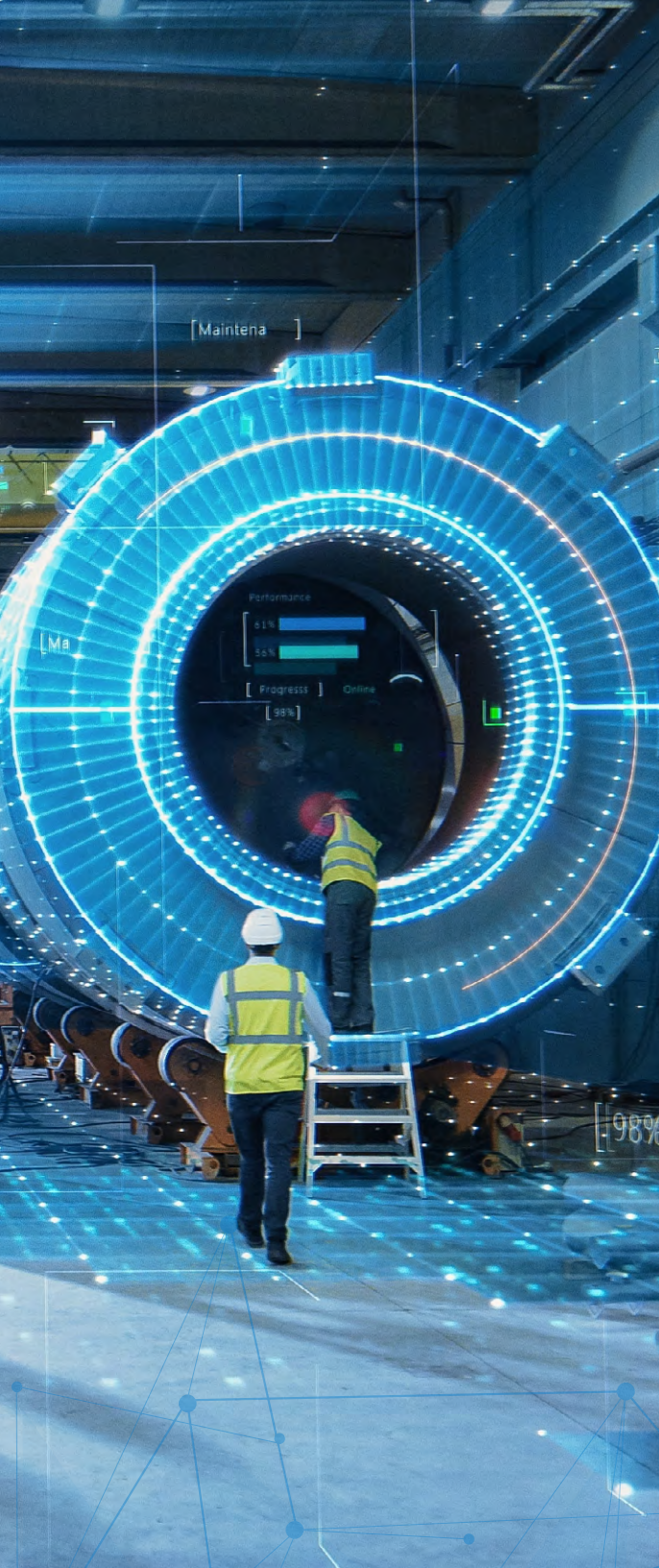


 Brochure

Aspen OptiPlant 3D Layout™



Overview

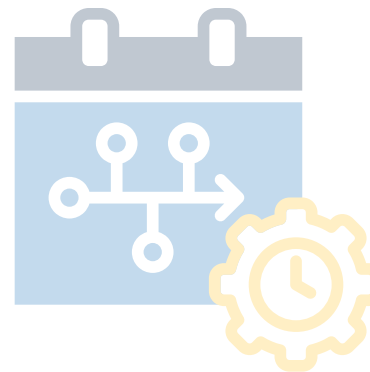
Transform Engineering with Fast Conceptual 3D Layouts

Aspen OptiPlant 3D Layout enables users to rapidly develop conceptual 3D models, facilitating early safety and constructability reviews, bulk quantity estimation and enhanced project visualization for stakeholders during early project stages.

By combining parametric modeling, rule-based algorithms and generative AI, Aspen OptiPlant 3D Layout can deliver multiple feasible layout options at unmatched speeds, as well as automating piping and cable tray routing.

Aspen OptiPlant 3D Layout's ability to integrate with Aspen Capital Cost Estimator™ (ACCE) and process simulators Aspen HYSYS® and Aspen Plus® enhances accuracy and decision-making throughout the project lifecycle. By integrating process, estimation and layout design into a single workflow, it streamlines engineering efforts, reduces costs and accelerates project timelines.

With minimal project information, users can assess space utilization, CAPEX and construction strategies—ensuring safety, sustainability, operability and constructability from the start.





Key Features and Benefits

Unlock Smarter Designs with Aspen OptiPlant 3D Layout

Aspen OptiPlant 3D Layout revolutionizes digital facility design by leveraging Industrial AI to develop and select the optimal multi-discipline layout that meets your business, safety engineering and construction requirements.

Generative AI-Driven Auto Layout

Leverage AI to generate multiple layout alternatives for your project within minutes, based on a defined list of equipment, line list and structure/pipe rack locations. These layout options are built based on PIP distance constraints, design principles and optimal cost functions. Engineers can select the most suitable option as a foundation for the final design, accelerating project timelines while maximizing safety and reducing costs. By harnessing AI, process engineers can efficiently evaluate multiple configurations and develop an optimized, cost-effective layout with greater efficiency.

AI-Driven Pipe and Cable Tray Auto-Routing

Automatically generates highly accurate routing for connectivity piping and cable trays within minutes, ensuring interference free results while minimizing bulk quantities. The auto-routing analysis considers process and stress conditions for every piping line and follows industry best practices to account for rack packing, pipe portability on steel and equipment, access and maintenance requirements and more. Aspen OptiPlant 3D Layout produces high-quality, multi-disciplinary models that enable engineers to explore various layout alternatives and assess bulk material requirements for each, facilitating easy comparison and optimization of project resources.

Improved Project Visualization

Gain clear insights into plant layout, equipment placement and potential design changes during conceptual project stages. Identify constructability risks early and minimize costly changes during later project stages, ensuring compliance with safety and industry requirements. With Aspen OptiPlant 3D Layout, engineers can evaluate multiple layout options in a fraction of the time required for detailed 3D modeling, enabling better decision-making and enhanced collaboration with stakeholders.

Analyze Modularization Strategies

Design plant modules based on location, transportation constraints and equipment/structural weight. Evaluate optimal module placement while validating installation requirements. Visualize and secure necessary maintenance and access spaces for each module. Combine modularization with auto-routing to generate accurate piping MTOs, validating connectivity between the modules and the rest of the plant for a streamlined design process.

Construction Planning

Evaluate layout and constructability options early to streamline and optimize the construction sequence. Define, review and report on construction work areas, construction work packages and engineering work packages. Establish hierarchy, schedules and sequences using color-coded attributes, ensuring better visualization, coordination and execution of construction plans.



Piping Assemblies for common equipment items

Accelerate layout creation with pre-configured piping assembly designs for heat exchangers and pumps, enabling standardization across equipment. Develop custom model templates to improve efficiency. Ensuring greater accuracy in piping lengths and material quantities. Leverage customizable parametric designs to streamline workflows, reduce manual effort and improve project consistency.

Streamlined Deliverables and Reuse Data

Easily export 3D and 2D diagrams for use in future projects, providing reference for repeatable layouts. Import laser scan data to accelerate layout creation. Generate detailed pipe isometric drawings and comprehensive reports, including material take offs, pressure drop analyses, stress evaluations and equipment summaries.





Concurrent Engineering Workflows

Streamlined Connection with Process Simulation

Transfer data from Aspen HYSYS or Aspen Plus and generate a preliminary list of sized equipment and a line list based on the connectivity in the process simulation. Secure data consistency through digital handover and import simulation results to accelerate layout creation. Develop process flow diagrams through Aspen OptiPlant 3D Layout's schematic creator to accurately size piping lines. Combine with AI-driven auto layout to accelerate layouts even further.

Streamlined Connection with Cost Estimation

Harness a two-way connection between Aspen OptiPlant 3D Layout and Aspen Capital Cost Estimator (ACCE) to create cost-effective layouts faster. Keep a consistent list of equipment, leveraging ACCE's and sizing capabilities. Transfer calculated MTO's from Aspen OptiPlant 3D Layout for rigorous cost estimation, eliminating manual inputs for pipelines and enhancing the estimate accuracy. Increase estimate reliability through the tool's visualization benefits.

Layout Handover to Detailed Design

Swiftly hand off layout results for detailed engineering. Export equipment, structure and piping line data into Hexagon Intergraph S3D or AVEVA E3D Design as native objects within these systems, compatible with all their capabilities. Accelerate the lifecycle from conceptual to detailed project stages.





Conclusion

Aspen OptiPlant 3D Layout empowers your organization to:

- **Reduce engineering time and cost:** Create layouts from minimal scope definition and prevent costly late-stage design changes.
- **Accelerate project timelines:** Incorporate and optimize 3D models as part of a concurrent engineering workflow, significantly improving early-stage engineering results.
- **Improve decision-making:** Visualize design alternatives and identify limitations, making informed engineering choices.
- **Ensure compliance & safety:** Design layouts that meet spacing, regulatory and operational safety requirements.

Experience the future of engineering with Aspen OptiPlant 3D Layout!



About Aspen Technology

Aspen Technology, now part of Emerson, is a global software leader helping industries at the forefront of the world's dual challenge meet the increasing demand for resources from a rapidly growing population in a profitable and sustainable manner. AspenTech solutions address complex environments where it is critical to optimize the asset design, operation and maintenance lifecycle. Through our unique combination of deep domain expertise and innovation, customers in asset-intensive industries can run their assets safer, greener, longer and faster to improve their operational excellence.

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