



Product News Alert

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Brands: AutoPIPE, SACS

Product Lines: Offshore Structural Analysis, Pipe Stress and Vessel Analysis

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Improve Accuracy, Reduce Risk, and Accelerate Project Schedules with the Integration of Pipe and Offshore Structural Analysis

Structural engineers can now improve the accuracy of offshore plant designs, considerably reduce design iteration resource-hours, and accelerate project schedules with a higher degree of confidence in the safe operation of the final designed plant. Enabled through the round-trip exchange of pipe support loads and the visual coordination of critical piping systems in Bentley's SACS and AutoPIPE applications, an integrated structural and pipe stress model provides a more accurate combined analysis model, and one that has been subjected to rigorous static and dynamic environmental loadings.

On subsea or topside offshore structures supporting critical oil or gas piping systems, the actual real-world stiffness of the combined systems cannot be ignored. It can easily compromise the safe operation of the plant due to unforeseen higher pipe component stresses or extremely hazardous piping loads placed on equipment like pumps, compressors, or pressure vessels, which can lead to catastrophic failures.

Key new capabilities of the integration of AutoPIPE and SACS include:

- Transfer all deadweight, temperature, and environmental piping loads such as wave, wind, and earthquake loads to the structural design model, eliminating thousands of hours of error-prone manual data entry;
- Create fully connected piping and structural analysis models across hundreds of pipe support locations in a single operation to more accurately capture the sway and stiffness of the model;
- Combine single or multiple structures easily with single or multiple piping systems into one integrated 3D analysis model;
- Improve 3D visual coordination by piping and structural engineering groups to avoid costly design mistakes;
- Perform 3D clash detection under hot or cold deflected conditions to prevent even one key piping component moving and damaging essential equipment or structures.

Complex offshore fixed and floating platforms, particularly FPSOs, have a maze of structural, piping, and equipment. These large, billion-dollar plants typically have more than 10,000 pipe supports and 1,000 pipelines supported by hundreds of independent structures. These need to be located, designed, and fitted together in very tight spaces, presenting a significant challenge to be overcome in order to avoid costly installation and operational failures. SACS and AutoPIPE provide 3D geo-coordination of piping and structural systems enabling engineers to quickly deliver more accurate and safer designs.

Phil Christensen, VP, analytical modeling, Bentley Systems, said, “This major enhancement to integration between AutoPIPE and SACS is just one part of our ongoing investment in software to bring mechanical and structural teams closer together for the benefit of the project. This is particularly important as global work sharing becomes the norm, and we can help automate workflows between disciplines across geographical boundaries.”

About AutoPIPE

AutoPIPE is a comprehensive, advanced application for pipe stress design and analysis that helps engineers produce the highest quality and safest engineered designs. It is suitable for nuclear plant design, which means engineers can ensure the highest safety standards possible. Fully interoperable with Bentley and third-party applications, engineers can analyze design scenarios faster and more comprehensively.

About SACS

SACS helps engineers improve design quality and predict offshore structural performance using a unified analysis environment that enables the efficient exploration of alternatives. Users can streamline processes with automated structural workflows to apply specialized analyses essential to any offshore project. This includes nonlinear structural analysis and dynamic response

analysis due to environmental loads, impact effects, and severe accidental loading. Operational safety is improved by allowing engineers to analyze ship impact and dropped objects, and minimize risk through offshore-specific load generation. Engineers can efficiently visualize complex structural response via interactive graphical review of analysis and fatigue, thus avoiding rework and potential project delays.

View and Download Related Images:

- [Image 1](#)
- **Image 1 Caption:** Save time, reduce errors, provide 3D collaboration transferring piping, structure and loads between AutoPIPE and SACS
- [Image 2](#)
- **Image 2 Caption:** Save time, reduce errors, provide 3D collaboration transferring piping, structure and loads between AutoPIPE and SACS
- [Video](#)