

TurboTides 2024R2 now are officially released for worldwide users

FloTides and OpTides were released for fluid network simulation and universal multidiscipline designs beyond the turbomachinery industry.

LOS ANGELES, CA, UNITED STATES, March 13, 2025 /EINPresswire.com/ -- Spinpo proudly announces: TurboTides, the leading provider of cutting-edge CAE industrial software solutions, releases TurboTides 2024R2, the latest iteration of its Revolutionizing Turbomachinery Design with AI-driven optimization and Enhanced Multidisciplinary Integration for turbomachinery. This update introduces groundbreaking advancements in intelligent optimization, multidisciplinary collaboration, and user-centric workflows, reaffirming TurboTides' position as a global leader in turbomachinery design innovation. Beyond the turbomachinery industry, two more CAE tools, FloTides, a fluid network simulation platform, and OpTides, a universal multidisciplinary design platform, join with TurboTides to serve the broader industry applications.

Key Highlights of TurboTides 2024R2

1. Intelligent Optimization & Full-Process Automation

• Al-Driven Optimization: The enhanced OASIS optimization engine leverages small-sample machine learning to tackle high-variable, multi-objective, and multidisciplinary challenges. It delivers faster convergence, stability, and seamless integration with CFD/FEA results. This multi-objective optimizer now features multi-point optimization for optimizing a performance map.

• Multi-Objective Optimization: Achieve simultaneous efficiency, weight reduction, and stress improvements through AI-powered multidisciplinary optimization.

• Automatic Error Handling: The system now detects and discards geometrically invalid optimization points in real, ensuring smoother workflows.

2. Enhanced 1D/2D/3D Design & Analysis

• Streamlined 1D Design: New Model Scaling and Data Calibration modes enable rapid generation of high-precision preliminary designs in the cycle module, supporting multi-stage compression systems, ORC cycles, and supercritical CO^I Brayton cycles.

• Operating Range Prediction in 1D Analysis: Tools have been developed to predict operating range, including a stall/choke predictor for compressors and a cavitation calculator for pumps

• Advanced 2D Throughflow Analysis: Added Inverse Design Mode (for axial applications) allows users to define performance targets (e.g., pressure ratios, efficiency) and automatically derive optimal blade geometries. Real-gas property calculations and radial mixing models (Denton, Lewis, Aungier) further enhance accuracy. • 3D Geometry & CFD Enhancements: Parameterized balance holes, asymmetric blade thickness definitions, and improved volute wall modeling streamline complex geometry creation. Structured gap meshing and dimensionless coefficient reporting elevate CFD precision.

• New FEA dynamics tools: New FEA features allow for harmonic, transient thermal, modal dynamics, and direct dynamics simulations, with integrated post-processing and animation.

3. Cross-Platform Collaboration & Database Upgrades

• Unified Database: TurboTides' centralized database now supports real-time team collaboration, version control, and seamless data synchronization across local and remote systems.

• Linux Compatibility: Full support for Linux systems ensures compatibility with domestic operating environments, expanding accessibility.

4. Other Features

• Balance Hole Modeling: Design and precisely simulate leakage structures, including export to CAD/FEA formats.

• NACA-65 Blade Generation: Create radial blades using conformal mapping algorithms for superior aerodynamic performance.

• Fir-Tree Geometry Tools: Simplified parameter adjustments and dynamic 2D previews enhance turbine disk design efficiency.

Why TurboTides?

TurboTides 2024R2 empowers engineers to:

• Integrate aerodynamics, thermodynamics, and structural analysis into a single platform, eliminating tool fragmentation.

• Reduce design cycles by up to 90% with automated meshing, parametric modeling, and Aldriven optimization.

Alongside TurboTides 2024R2, TurboTides continues to advance its ecosystem of nextgeneration CAE solutions:

• FloTides: A fully autonomous 1D-3D fluid network simulation platform, FloTides revolutionizes thermal-fluid system design with AI-driven optimization, fluid-structure coupling, and Reduced Order Model (ROM) integration. Its robust libraries for components (130+ types) and industrial-grade fluid properties (NIST-standard and specialized media) enable rapid modeling of complex systems in the aviation and HVAC sectors. Unique FMI-compliant co-simulation and 1D-3D CFD interoperability ensure precision for digital twin development and lifecycle management.

 OpTides: A universal CAE platform for multidisciplinary design, OpTides empowers industries from aerospace to automotive with GPU-accelerated CFD/FEA solvers, parametric modeling, and Al-driven optimization. It streamlines tasks like aerodynamic shape optimization, structural integrity validation, and transient dynamics analysis, achieving 5-10x faster convergence than conventional tools. Its unified database and scriptable workflows support seamless collaboration, making it ideal for rapid prototyping and mission-critical engineering.
Together, TurboTides, FloTides, and OpTides form a more robust collection of innovations, delivering end-to-end solutions that redefine efficiency, accuracy, and agility in industrial design.

About TurboTides

TurboTides is advancing CAE software independence. The company empowers high-end equipment manufacturing through integrated, intelligent, and customizable solutions, ranging from turbomachinery (TurboTides) to thermal-fluid systems (FloTides).

About Spinpo LLC: Located in California, Spinpo provides worldwide services for sales and support of TurboTides software

KEYWORDS: #TurboTides #CAD #CAE #turbomachinery #compressors #pumps #turbochargers #engineering#innovation #simulation #optimization #AI

Katherine Zhang Spinpo +1 510-779-7984 email us here

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