

AFT xStream™

Steam and Gas Transient Analysis Software



Simulate and Solve Your Challenging Steam and Gas Transient Problems

AFT xStream is a powerful fluid dynamic simulation tool for high-speed, acoustic transients that occur in steam and gas piping systems. Uncertainty in design and operations costs money and time. Now you can accurately simulate how your steam and gas systems will respond to potentially harmful transient events.



Capabilities

- Accurately simulate high-speed transients in steam and gas piping systems including choked flow conditions
- Evaluate overall system response and transient pipe forces after steam and gas turbine trips
- Predict transient supply pressures, temperatures and flows to operating gas compressors and turbines when one trips offline
- Simulate tank blowdowns and charging, and how long it takes to reach desired pressures
- Predict transient pressures and flows due to heat exchanger tube ruptures
- Easily change system input data including transient valve positions, compressor operation, control set points, pressures, temperatures and more
- Initiate transients based on time or events in the system

Benefits

- Reduce expensive overdesign resulting from analytical uncertainty
- Increase uptime by understanding how an unexpected transient event will impact pressure, temperature and flow delivery to critical equipment
- Improve safety by evaluating all system shut down scenarios
- Validate that required flow can be delivered with certainty
- Visualize the dynamic response

Applications

- Ensure pressure, temperature and flow extremes are within design allowables
- Determine imbalanced pipe forces for sizing structural supports
- Troubleshoot existing systems to determine the cause of operational problems

XSTREAM ADD-ON MODULE

Use this software extension tool for enhanced functionality.

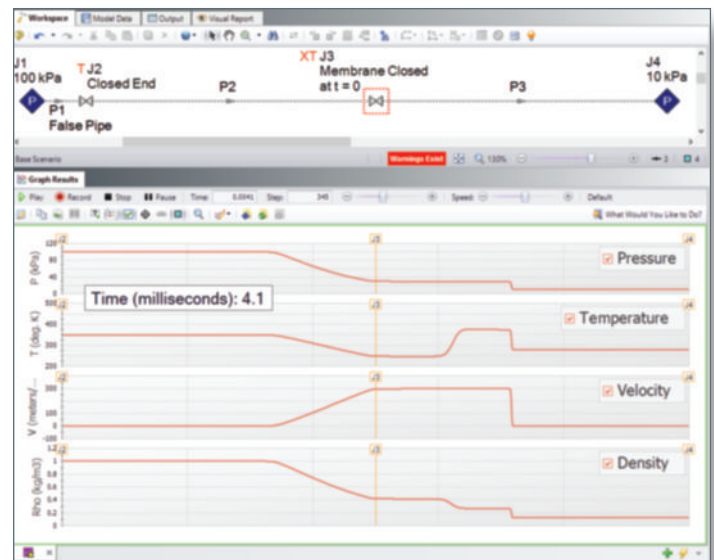
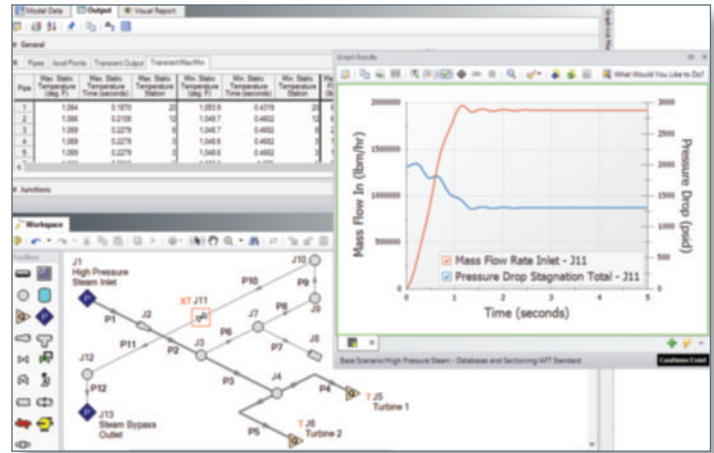


Pulsation Frequency Analysis

Helps identify and avoid resonant frequencies in systems, especially in those caused by reciprocating compressors.

Features

- 2D flow diagram or isometric view interface
- Built-in steady-state solver to automatically initialize system before the transient
- Automatic pipe sectioning based on steady-state acoustic velocities
- Compound transient event logic to model complex control sequences
- Scenario Manager to track all design variants and operational possibilities in a single model file
- Integrated graphing and reporting
- Animation tools for visual interpretation of complex transient interactions
- Generates force imbalance files that can be automatically read into CAESAR II®, ROHR2, AutoPIPE and TRIFLEX® pipe stress dynamic models
- Built-in libraries of fluids (including NIST REFPROP and ASME Steam Tables) and fittings which can be extended and customized
- Define component mixtures using the built-in NIST REFPROP and Chempak™ add-on thermophysical databases, totaling over 600 unique fluids



Data Integration

- Import piping layouts and dimensional data from GIS Shapefiles, CAESAR II® Neutral Files, and PCF files from a wide range of sources
- Robust Excel integration to import and export data

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How does it work?

AFT xStream incorporates a highly accurate steady-state solver which provides seamless transfer of initial conditions to the transient analysis. Steady-state solutions are determined using a modified Newton-Raphson matrix iteration plus proprietary methods developed by AFT. The Method of Characteristics is used to solve the transient mass, momentum and energy equations of pipe flow.

World Class Support

Your software includes one free year of product upgrades and technical support. Additionally, AFT offers a variety of training for all levels of knowledge.



Training Seminars

This classroom style setting accelerates your skills and teaches you how to be an AFT analysis and simulation expert.



Free Webinars

Hosted webinars talk about products and solutions-based uses. Recorded webinars are located on our website.



Expert Assistance

Have more projects than you can handle or need expert analysis? Extend your team with our Flow Expert Package.



Tips & Tricks

Each month, an AFT engineer gives newsletter readers a new tip and trick to keep you up to date.