

# Incompressible Pipe Flow Analysis & System Modeling Software

# AFT Fathom™ 9

## Evaluate New Designs and Improve Your Installed Systems

AFT Fathom is practical fluid dynamic simulation software used to calculate pressure drop and flow distribution in liquid and low velocity gas piping and ducting systems. Designed for fluid systems containing water, petroleum and refined products, chemical products, cryogenics, refrigerants, and more, AFT Fathom is an indispensable tool to help you tackle your most challenging systems.



### Capabilities

- Experiment with operating conditions and scenarios
- Quickly and easily change system input data, including valve positions, pump operation, control set points, pressures, temperatures and more
- Model a wide range of system components for both design and operational cases
- Vary your system line-up: open and close pipes and valves, turn pumps on or off, set control valves to fail position
- Specify alerts that automatically highlight output values that are out of range for flow, pressure, velocity, pump efficiency and more
- Select pumps from online manufacturer catalogs
- Compile catalogs of your frequently used piping components and select them from a drop down list
- Address the viscosity and frictional changes associated with pumping non-settling slurries and a variety of other non-Newtonian fluids
- Calculate the cost of pipes and components within your system
- Import piping layouts and dimensional data from GIS shapefiles

### Benefits

- Understand the hydraulic behavior of your system and predict how pipes, valves, pumps and other components will interact with each other
- Evaluate the performance of new designs and assure all design requirements are met
- Identify and correct operational problems in installed systems
- Produce less costly, more efficient and more reliable piping systems

### Typical Applications

- Pipe sizing
- Pump sizing and selection
- Control valve sizing and selection
- Simulating system operation and component interaction
- Evaluating heat transfer in pipes and heat exchangers
- Troubleshooting existing systems to determine the cause of operational problems

*Dynamic solutions for a fluid world™*

**AFT**  
Applied Flow Technology

## Features

- Advanced hydraulic solver
- Detailed modeling for centrifugal and positive displacement pumps
- Scenario Manager to track all design variants and operational possibilities in a single model file
- Pump vs. system curve generation including individual head curves and composite efficiency
- Thermal analysis including piping heat transfer and heat exchanger modeling
- Supports Newtonian and non-Newtonian fluids, including non-settling slurries
- Optional Chempak™ add-on utility provides a thermophysical database of almost 700 fluids

## AFT Fathom add-on modules:

- Settling Slurry (SSL) - models the effects of pumping fluids containing settling solids using the Wilson/GIW method
- Extended Time Simulation (XTS) - models dynamic system behavior
- Goal Seek and Control (GSC) - identifies input parameters that yield desired output values and simulates control functions
- Automated Sizing (APS and ANS) - automate the process of sizing pipelines and piping networks based on required conditions, such as maximum pressure or minimum flow, to reduce cost or weight

Modules can work individually or together within AFT Fathom and with your existing AFT Fathom models.

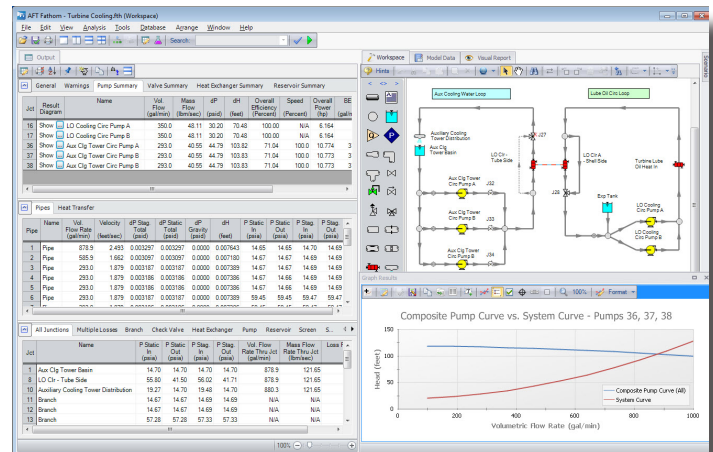
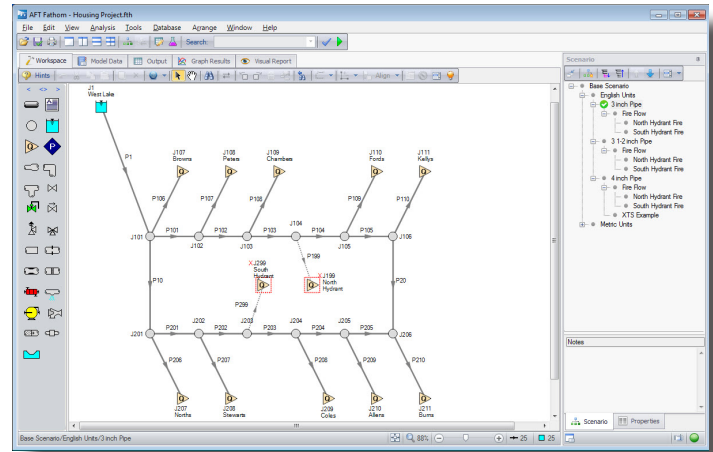
## How does it work?

AFT Fathom's hydraulic solution engine uses the Newton-Raphson matrix iteration method plus proprietary methods developed by AFT to solve pipe flow and duct flow applications. AFT Fathom uses the Bernoulli Equation and Reynolds Number-based relationships for pipe friction calculation.

## Get the most out of your AFT Fathom software investment

Training by our professional staff helps you learn to make the best use of the software's wide range of capabilities and modeling techniques. Our seminars review fundamental theory, basic through advanced techniques and hands-on modeling. Whether you're a new or experienced user, you'll find an AFT Fathom seminar a worthwhile investment of your time. AFT offers regularly scheduled seminars at our offices in the USA. Seminars can also be held at your facility. Visit [www.aft.com/learning-center/seminars](http://www.aft.com/learning-center/seminars) for more information.

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## World class support

Your software purchase includes a free year of product upgrades and technical support provided by our team of professional engineers. We provide hydraulics knowledge that comes with extensive real world experience.



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