

AFT Arrow™ 7

Compressible Pipe Flow Analysis & System Modeling Software



Evaluate New Designs and Improve Your Installed Systems

AFT Arrow is dynamic simulation software used to calculate flow distribution and pressure drop in gas piping and ducting systems.

Designed for compressible flow systems containing steam, compressed air, chemical and petrochemical process gases, natural gas transport and more, AFT Arrow is an indispensable tool to help you tackle your most challenging systems.



Capabilities

- Easily change system input data to experiment with operating conditions and scenarios
- Model a wide range of system components for both design and operational cases
- Simulate ideal or real gases
- Choose between isothermal, adiabatic or generalized heat transfer conditions
- Vary your system lineup: open and close pipes and valves, turn compressors or fans on or off, set control valves to fail position
- Conduct flow analysis with high velocities including sonic choking
- Compile libraries of your frequently used components
- Assemble non-reacting mixtures and analyze dynamic mixtures resulting from intersecting flow streams
- Model rotating piping systems such as those found in steam and gas turbines
- Model effects of elevation changes such as in tall structures, subsurface mines and overland pipelines
- Utilize the output data to summarize the codes and standards used within the models

Benefits

- Understand the behavior of your system
- Predict how pipes, valves, compressors, fans and other components will interact with each other
- Evaluate the performance of new designs
- Assure all design requirements are met
- Identify and correct operational problems
- Produce less costly, more efficient and more reliable piping systems

Applications

- Pipe and duct sizing
- Relief valve sizing and system calculations
- Compressor and fan sizing and selection
- Control valve sizing and selection
- Simulating system operation and component interaction
- Choked flow calculations
- Evaluating pipe insulation and heat transfer in pipes and heat exchangers
- Troubleshooting existing systems

Add-On Modules

GSC

Goal Seek & Control

Identifies input parameters that yield desired output values and simulates control functions

ANS

Automated Network Sizing

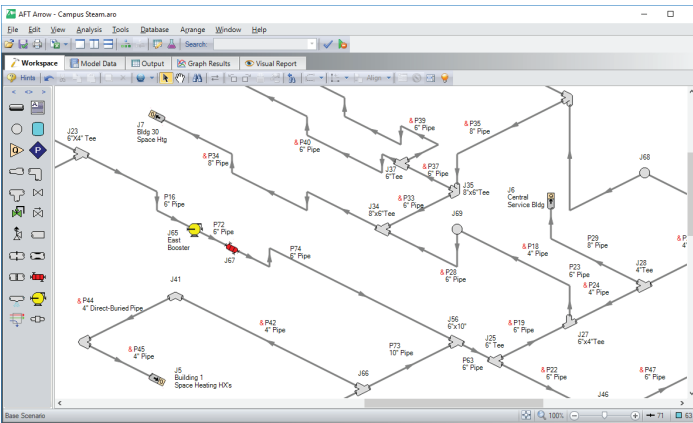
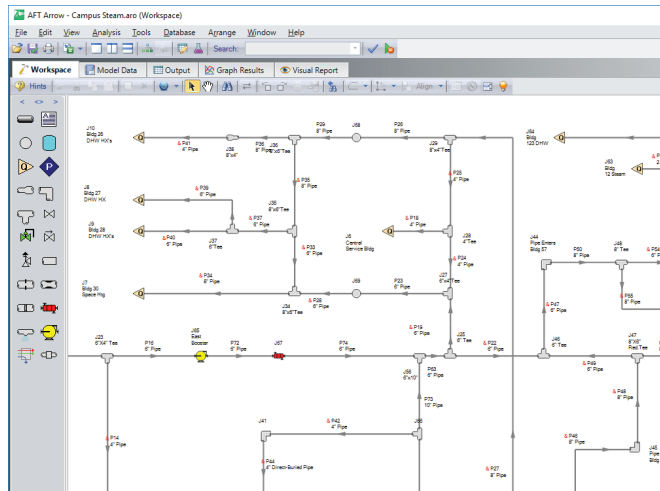
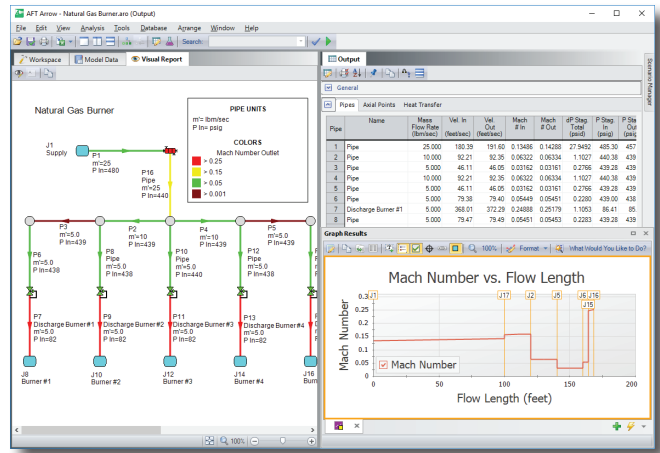
Automatically size your network to minimize weight and cost

Features

- 2D flow diagram or isometric view interface
- Advanced methods provide highly accurate results
- Detailed modeling for fans and compressors, control valves, heat exchangers and other components
- Conduct compressor and fan energy cost analysis
- Thermal analysis including piping heat transfer and heat exchanger modeling
- Scenario Manager tracks all design variants and operational possibilities in a single model file
- Built-in libraries of fluids (including NIST REFPROP and ASME Steam Tables) and fittings which can be extended and customized
- Chempak™ add-on utility provides a thermophysical database of almost 600 gases - allows you to define non-reacting pre-mixtures and simulate dynamic flow mixing

Data Integration

- Import piping layouts and dimensional data from GIS shapefiles, EPANET, CAESAR II® and ROHR2 Neutral files, as well as PCF files from AutoCAD Plant 3D®, SmartPlant®, PDS, CADWorx®, and others
- Robust import/export Excel integration



How does it work?

AFT Arrow's powerful solution engine simultaneously solves five fundamental equations; mass, momentum, energy, state and Mach number. It uses a modified Newton - Raphson matrix iteration method plus proprietary methods developed by AFT so you can achieve a true and rigorous compressible flow solution.

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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.



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



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