# Automated Network Sizing
*an add-on module for AFT Fathom™ or AFT Arrow™*

**AFT**
Applied Flow Technology

## Design with Intelligent Sizing Technology
*Automatically size all piping and system components in an integrated manner to minimize weight and monetary cost.*

### Employ search algorithms to find system cost minimums.

- Apply design objectives to minimize system costs including pipe weight, duct volume, and monetary cost.

- Specify design requirements such as pressures, flowrates, velocities and NPSH throughout a system.

- Size a single system for multiple operating conditions, meeting their different design requirements using dependent design cases.

- Enforce commonality among pipe groups and parallel/back-up equipment during sizing.



**Blue Ribbon Designs**

Size your piping network as an integrated system to ensure you find better design combinations, all while maintaining your design requirements.

**Engineer your Project Time**

Allow the ANS module to smartly manage your iterations. This enables efficient comparison of more design concepts in the same time to avoid deadline driven compromise.

**Predict the Future**

Use design cases to size an initial system while anticipating different operating conditions or the increased flow requirements of future expansions.

**Deflate Economic Uncertainty**

Perform economic analysis without opening another program. Account for interest rates and variable costs over time to determine life-cycle profitability.

## With the ANS module you can save **10-15%** or more!

## Data Integration

- Import piping layouts and dimensional data from GIS shapefiles, EPANET, CAESAR II™ neutral files, as well as PCF files from AutoCAD Plant 3D™, SmartPlant™, PDS™, CADWorx™, and others

- Easily import piping and equipment costs from Excel®

- Robust import/export Excel integration

## The Magic is in IntelliFlow®

The ANS module uses IntelliFlow, which uses a combination of numerical searching algorithms and pipe flow simulation. The technology was developed by AFT and has been a solution proven to save both capital and recurring costs as well as significantly reduce energy usage. It evaluates the complex interaction of variables in your system design, revealing combinations of parameters that minimize cost or weight.

# Sizing Navigation Panel

**Sizing Objective:** Select whether to minimize weight, volume or cost (this will determine your navigation path)

**Size Assignments:** Identify individual pipes, or common groups of pipes, to be sized

**Candidate Sets:** Choose the range of allowable pipe sizes

**Design Requirements:** Input and apply design requirements to the appropriate pipes and junctions

**Assign Cost Databases:** (optional) For cost-based sizing, select the cost data for the piping and equipment

**Sizing Method:** Select an algorithm, or just follow the default choices

**Dependent Design Cases:** (optional) Select multiple operating cases you would like to include in the sizing
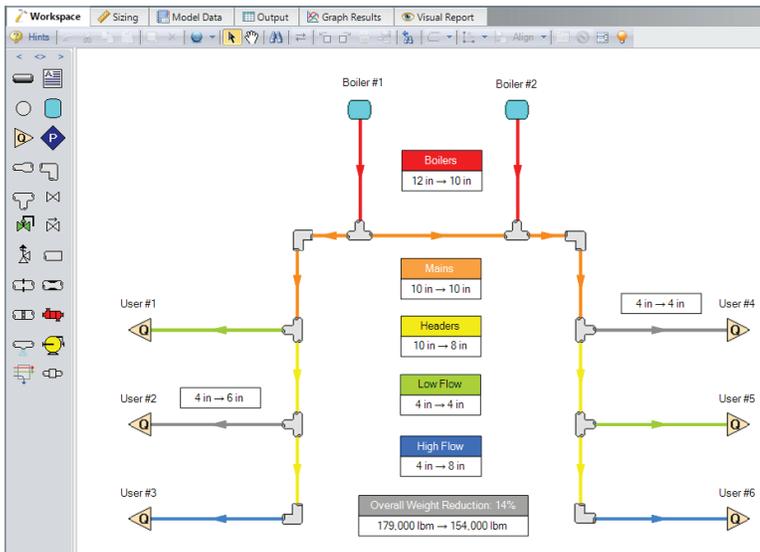


*The ANS module intelligently sized the pipes of this steam supply system. Total pipe weight was reduced by 14% while enforcing common pipe groups such as Main and Header lines. Design requirements, such as the minimum supply pressures at each user, were also maintained during sizing.*

## Minimize your initial system costs without the legwork required for a cost database.

- Out-bid competitors on initial system cost.

- Minimize system costs such as pipe weight, surface area, or volume to avoid developing a monetary cost database.

- Easily demonstrate the potential savings gained by using the ANS module.

- Automatically size an initial system while accounting for planned, future expansions. Or, size an expansion for an existing system.
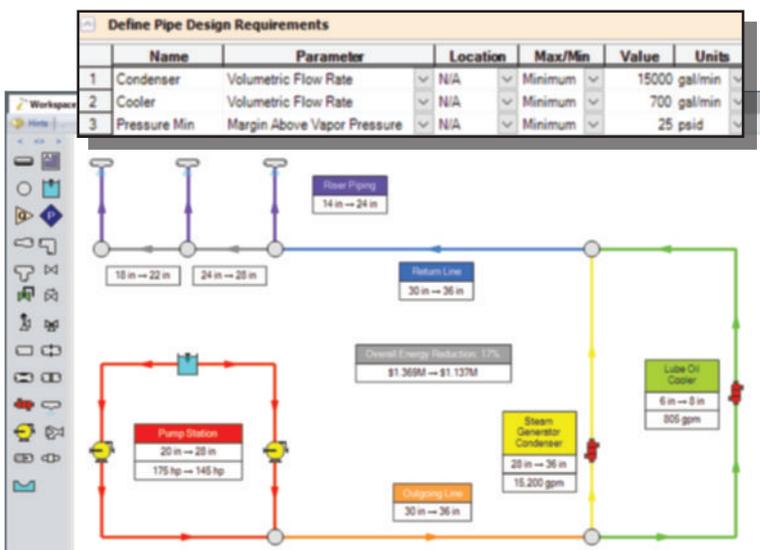


*The ANS module was able to reduce energy consumption in this cooling tower system by 17%. This resulted in a 7% reduction in total costs over the system's 10-year lifecycle. Design requirements, such as minimum flows through heat exchangers and the maximum pump power, were maintained during sizing.*

## Manage your carbon footprint by sizing your system to minimize energy costs.

- Justify an increased initial investment for long term energy savings, reducing total cost over the system's lifecycle.

- Size to minimize energy costs for a given budgetary limit.

- Account for future costs by using the time value of money and adjusting for variable recurring costs.

- Determine the cost effectiveness of replacing existing pipes in a system.