AFT Titan 3.0

Intelligent Sizing for Compressible Flow Piping & Ducting Systems

With ever increasing complexity, sizing today's compressible flow systems for minimal cost surpasses the best traditional design methods. Human intelligence cannot comprehensively handle the often staggering number of variables involved, resulting in missed opportunities to reduce cost. Now, *AFT Titan*™, with IntelliFlow™, eliminates these boundaries. Providing the systems engineer a new technology to intelligently size the system as a whole, your compressible flow piping system can be optimally sized resulting in substantial cost savings. With comprehensive system modeling capabilities, a flexible graphical interface and an advanced optimization engine, *AFT Titan* offers a quantum leap improvement to the traditional pipe and duct design process.

Cost Reduction Through Intelligent System Sizing

What is intelligent system sizing? Traditional engineering methods are limited in their ability to select pipes, ducts and equipment sizes on a system basis. Even simple systems will have billions of potential size combinations to consider for their various components, far too many to evaluate by traditional methods. In contrast, intelligent system sizing selects all components simultaneously as a unit. This is the essence of IntelliFlow technology. *AFT Titan* harnesses this technology to automatically identify and select the lowest cost design to meet your requirements.

With *AFT Titan*, you specify the design requirements and sizing criteria. Sizing criteria may be to minimize initial or life cycle cost, or parameters such as pipe weight, volume or surface area. *AFT Titan* then performs a comprehensive analysis of the complex interaction among the various components to intelligently determine the optimal sizes of piping, ducting, compressors and fans, valves and other system components. The savings in materials, installation, energy and other costs associated with your piping or ducting system can be dramatic. Traditional methods of system sizing simply can't compare. No matter how good your design methods are, *AFT Titan* is guaranteed to reduce cost.

Leading Edge Pipe Flow Modeling Technology

Built on the advanced flow analysis and system modeling capabilities of the acclaimed *AFT Arrow*™, *AFT Titan's* powerful solution engine simultaneously solves the five fundamental equations of flow; mass, momentum, energy, state and Mach number. Users may select ideal or real gases, and between isothermal, adiabatic or generalized heat transfer conditions. An intelligent solver sets a new standard in solver robustness and speed by dynamically selecting the optimum calculation method based on the solution progress. With the optional Chempak™ add-on, a thermo-physical database of almost 600 fluids is available to further expand the envelope of your analysis and design.

Applied Flow Technology

Design with intelligence. Build with confidence.™

AFT Titan 3.0

Advanced Graphical Interface

The power of *AFT Titan*'s intelligent system sizing capabilities is readily accessible through an advanced drag-and-drop interface allowing the engineer to focus on their system rather than the mechanics of software manipulation. Equipment characteristics, analysis and output are tightly integrated with your system's schematic representation. Multiple system configurations are easily managed within a single model using Scenario Manager, with changes in the base model automatically inherited by alternate design cases. Extensive database support greatly facilitates adding your data for fluids, materials, components and cost. The available MeansData™ module provides material and installation costs for a wide variety of piping and components from the pre-eminent cost data source, RS Means Company.

Applications

Minimizing Initial vs. Life Cycle Cost

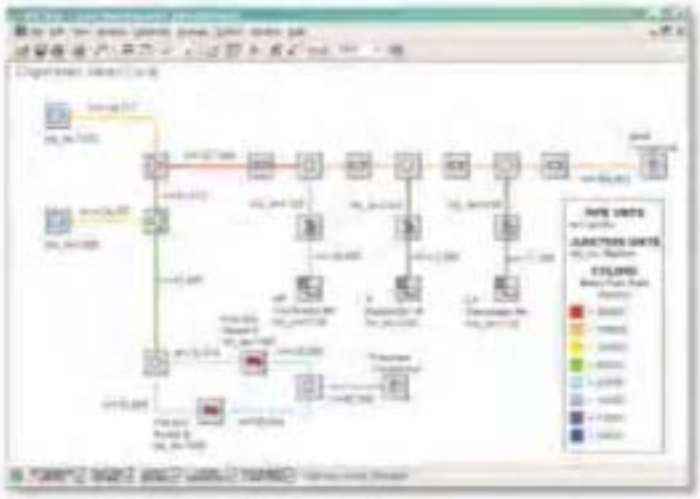
By sizing to minimize initial cost or life cycle cost over any specified duration, *AFT Titan* provides the power of informed decision making in developing a low cost system design.

Size for Minimum Cost Over Multiple Design Cases

Imagine the impact of determining piping, ducting and component sizes to minimize cost while insuring performance requirements are met for one or more off design cases. Or perhaps you need to concurrently size for alternate operating scenarios such as two compressor operation in the summer and one compressor operation in the winter. Only *AFT Titan* can automatically determine the lowest cost system for these real world conditions.

What is IntelliFlow™ and How Does It Work?

IntelliFlow combines powerful network pipe flow analysis algorithms with state-of-the-art numerical optimization algorithms to intelligently evaluate the complex interaction of system design variables. The system design is repeatedly perturbed and re-analyzed to define the shape of the design space, revealing combinations of design parameters that minimize cost. Design constraints specified by the engineer direct the search in areas that satisfy design requirements such as pressure, velocity and compressor pressure rise. Searching continues until an optimum design is found, which is then presented to the user.



Relief System Sizing

With choked flow and, often, multiple choking points, sizing relief and safety piping and valving is a complicated task. *AFT Titan*'s intelligent sizing technology will not only assure a system meeting capacity requirements, but one that does it for minimal cost.

Variable Frequency Drive vs. Control Valve Analysis

The true relative costs of VFD's vs control valves can only be determined by comparing systems optimally sized for each case, a task quickly done using *AFT Titan*.

Understand What Really Drives Your Design

Piping and ducting systems typically have to meet a variety of requirements whose complex interaction makes it difficult to see their relative impact. Comparison of optimized results for differing constraints using *AFT Titan* will clearly show this impact providing you valuable insight into what's driving your system design.

System Balancing through Intelligent Sizing

AFT Titan can automatically determine line sizes to achieve inherent system flow balance resulting in significant reductions in pumping costs by minimizing throttling losses in flow control devices.

System Requirements

- Windows 95 and higher or NT 4.0 and higher
- 64 MB RAM minimum
- 800 x 600 display minimum
- Stand-alone or network