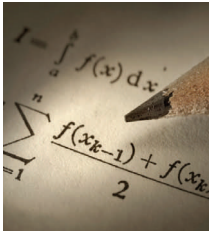




FLOW OF FLUIDS

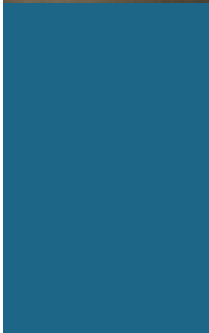
www.flowoffluids.com




ACCURATE
Calculations




Food Processing


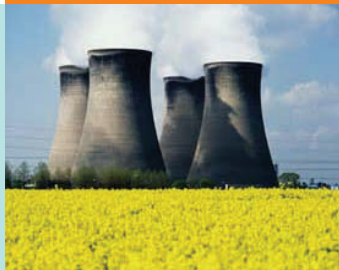
Nuclear



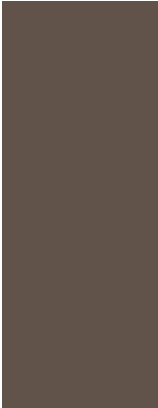
SYSTEM
Design





PUMP
Selection


HVAC/R

Chemical
Plants




Share
INFORMATION




Wastewater
Treatment




Flow of Fluids
4529 Intelco Loop SE
Lacey, Washington 98503-5941
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Office: 360-412-0702
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ABOUT FLOW OF FLUIDS

Flow of Fluids Premium simulates the operation of small piping systems transporting liquids and industrial gases under a variety of expected operating conditions. Flow of Fluids Premium provides accurate results for series, branching, and looped systems (both open and closed) with up to 25 pipelines. If you can draw your piping system, Flow of Fluids Premium will show you how it operates.

Flow of Fluids Premium **can handle gasses as well as liquids**. The program also allows users to **select pumps directly from more than 85 manufacturers' supplied electronic pump catalogs** to ensure that you select the correct pump for your system.

All new Flow of Fluids Premium purchases include a one-year free TechNet Orange subscription. TechNet Orange entitles users to free technical support and upgrades for one calendar year.

FLOW OF FLUIDS VS. SPREADSHEET

Why use Flow of Fluids Premium when my spreadsheet provides me with the results I need?

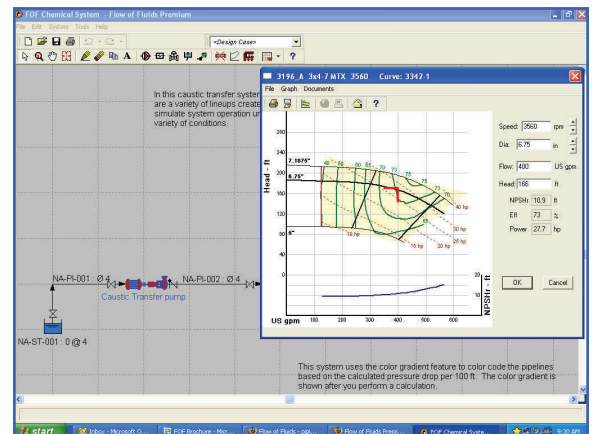
Spreadsheet software can only calculate the head loss in a single pipeline for a given flow rate. Flow of Fluids Premium can calculate the head loss in a single pipeline, and...

- Calculate the flow rates and pressures in the entire piping system by performing a full hydraulic network analysis.
- Select centrifugal pumps from manufacturers' supplied electronic pump catalogs.
- Insert the pumps and control valves into the piping system model, showing how the entire piping system operates.
- Consider alternate operating conditions and shows you how the system operates.

Flow of Fluids Premium provides you with a total system view instead of a head loss calculation for a single pipeline.

BENEFITS

- A Clear Picture of Your Piping System
- Powerful Calculation Engine
- Access to Electronic Documents
- Share Your Results with Others



View Pump Curves

Customize Your Reports

The screenshot shows the 'Print Report' dialog box. It is divided into several sections:

- Report Header and Footer:** Fields for Company (Your Company), Project (Fluid Piping System X), and Footer (Revised January 2007).
- Formatting:** Checkboxes for 'page break at sections', 'landscape', and 'print to PDF'.
- Report Type:** Radio buttons for 'List', 'FLO-Sheet', 'Bill of Materials', and 'Pipeline'. Under 'FLO-Sheet', there are options for 'Tiled printing' (Single Page, Large Symbols, Color Key) and 'design data', 'results', 'hydraulic grades', 'tagged areas only', and 'exceptions only'.
- Bill of Materials:** A list of pipeline selections: NA-PI-005, NA-PI-006, NA-PI-001, NA-PI-002, NA-PI-003, NA-PI-004, and NA-PI-005.

FLOW OF FLUIDS

The perfect tool to design, build, operate and maintain fluid piping systems

When analyzing a piping system you need a tool to help visualize the interaction of pipelines, pumps, components, and controls throughout the system.

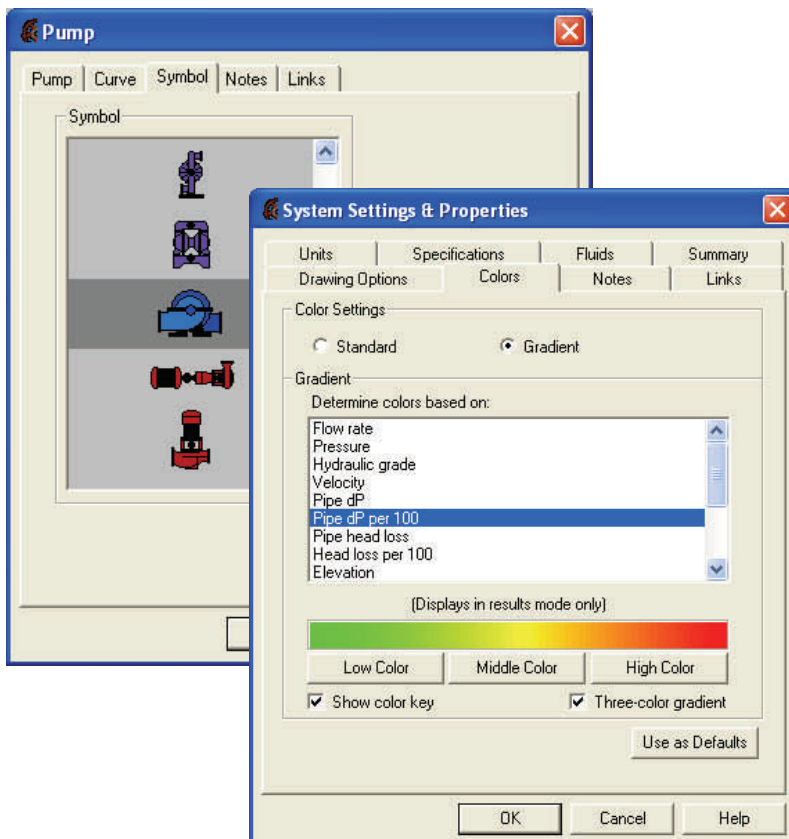
Flow of Fluids Premium provides you a clear picture of the entire system by integrating the following tasks into a single program:

- A piping schematic showing how the system components and pipelines are connected.
- A powerful calculation engine showing system operation.
- Communication tools help share your design with others.
- Access to supporting documents in electronic format.

Now everyone from the boardroom to the plant floor will understand how the piping system operates along with, all the information needed to design, build, operate, and maintain the system.

Using Flow of Fluids Premium you can:

- Draw a piping system schematic showing all the pumps, components, tanks, control valves and interconnecting pipelines.
- Size the connecting pipelines using electronic pipe, valve, and fluid data tables.
- Select pumps and control valves from manufacturer's Electronic Catalogs, to optimize pump and system operation.
- Calculate how the system operates including pressures and flow rates, Net Positive Suction Head (NPSHa), and annual pumping costs.
- Provide immediate access to supporting documents needed to design, build, operate and maintain the piping system.
- Share the piping system design with others by way of reports in PDF format.
- View your results in color using the color gradient feature.





FLOW OF FLUIDS

PROGRAM OVERVIEW

Providing a Clear Picture

Flow of Fluids Premium's piping schematic provides you with a familiar flow diagram complete with all the pumps, tanks, components, controls, along with the interconnecting pipelines. You can use your own naming convention with Flow of Fluids Premium, providing a familiar view of the piping system. Point to an item on the flow diagram and the fly-by viewer provides the highlights, to get more detail double-click on the object and Flow of Fluids Premium displays a detailed property sheet.

The flow diagram displays the calculated results, showing you the pressures and flow rates in your system. Flow of Fluids Premium highlights trouble spots in your system such as low NPSHa at the pump suction, system bottlenecks, and improper control valve position.

“Finally, a credible and useful hydraulic model that supports intelligent systems management and planning.”

*- Dave Rogers,
Rogers &
Associates*

Integrated System Calculations

Flow of Fluids Premium performs all the calculations needed to size individual pipelines, select and evaluate pumps and control valves, size flow meters and balancing orifices, and perform a full hydraulic network analysis of piping systems up to 25 pipelines.

Individual pipelines are sized with user created pipe specifications streamlining the design process. Flow of Fluids Premium looks up the pipe sizes, valve and fitting properties, and fluid properties using engineering data tables on disk. With full control over the engineering data table you can customize the operation of Flow of Fluids Premium to meet your needs. The pipe specifications can be saved and used as templates for starting future projects.

Flow of Fluids Premium calculates the design point values needed for pump and control valve selection. You can then select pumps and control valves from manufacturers electronic catalogs and place them into the piping system providing you with a clear view of how the total system operates.

A piping system is called on to operate under a variety of conditions. With Flow of Fluids Premium you can turn pumps on and off, open and close pipelines, change tank levels, and adjust set points for control valves. Flow of Fluids Premium provides you with a clear picture under a variety of expected operating conditions.

FLOW OF FLUIDS

Communicate With Others

Flow of Fluids Premium incorporates many communication and collaboration tools helping you share the piping system model with other designers, engineers and clients.

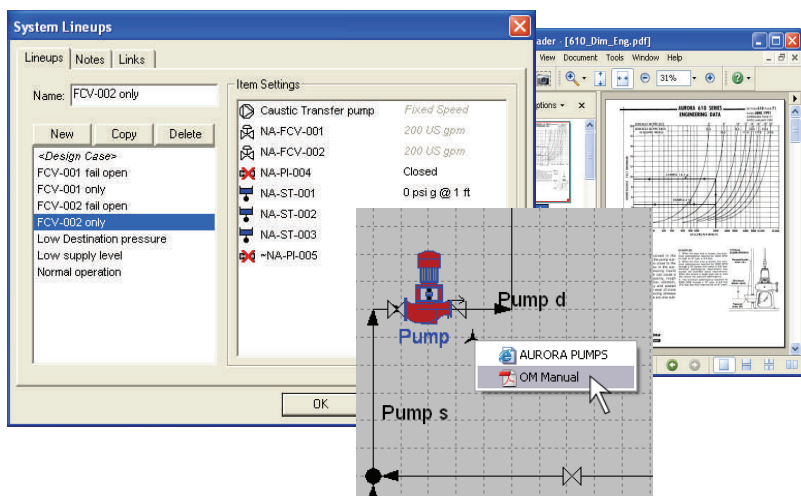
Flow of Fluids Premium's design files and pipe specifications serve as templates. Starting a project using a design file your pipe specifications are immediately available. When selecting a pipe specification the pipe material, schedule, sizing rules, and design limits are automatically established. By customizing the pipe, valve, and fluid tables you can further customize Flow of Fluids Premium providing you with total design control.

The calculated results can be viewed within the program, sent to any Windows supported printer or plotter, or e-mailed as PDF files, all from within Flow of Fluids Premium.

Access to Design Information

A tremendous amount of information is needed to design, build, test, operate, and maintain a fluid piping system. Hypertext links provide immediate access to necessary design documents. For example you can create a link for a pipeline to display the isometric drawing developed under a CAD program and have immediate access to the drawing by clicking on the link.

The links can start other applications used to operate or maintain your piping system.



Advanced Calculation Method

Flow of Fluids Premium uses the Colebrook-White method when calculating the friction factor in the pipeline, and performs all head loss calculations using the Darcy-Weisbach formula. This method provides accurate results for non-compressible fluids, including most process fluids. The Darcy-Weisbach method also provides satisfactory results for compressible fluids when less than 40% pressure drop occurs in a pipeline.

The program supports all valve and fitting types found in the Crane Technical Paper 410 and allows the addition of custom valves and fittings.

Flow of Fluids Premium automatically configures the lineup for each network calculation by tracing the system loops and setting up the flow and pressure drop equations needed for the calculations. The program calculates the balanced flow rates and pressures in a piping lineup using the simultaneous path adjustment method developed by Dr. Wood of the University of Kentucky.

All pump selection calculations are performed using the method outlined in the *Hydraulic Institute Standards for Centrifugal, Rotary & Reciprocating Pumps*. All calculated values are based on the pump operating data found in the manufacturers supplied pump catalogs.

Control valve sizing is performed using the method outlined in the Instrument Society of America Standard ISA S75.01 *Flow Equations for Sizing Control Valves*.

Flow meter and balance orifice sizing is performed using the method outlined in the American Society of Mechanical Engineers Standard ASME MFC-3M *Measurement of Fluid Flow in Pipes Using Orifice, Nozzle, and Venturi*.