

## PIPING SYSTEM DESIGN

Whether you are working on a new design, an update to an existing system or the evaluation of a current system, Pipe Flow Expert shows you how your system will perform.

## SOFTWARE OVERVIEW

Pipe Flow Expert is a Windows based software application that is used to design, document and solve pipe networks.

It helps piping engineers analyze and solve a wide range of problems where the flow and pressure loss throughout a pipe network must be determined.

It can model both open and closed loop systems, including systems with multiple supply tanks, multiple pumps in series or parallel, and multiple discharge points.

## INTUITIVE USER INTERFACE

The Pipe Flow Expert graphical user interface is easy-to-use and makes pipeline modeling simple.

Users can select and draw items with just a few mouse clicks.

Add items such as reservoirs, pressurized tanks, pumps, valves, pressure reducing valves (PRVs), back pressure valves (BPVs), heat exchangers and other components that affect flow in a pipe system.

## PIPES & FLUIDS DATABASES

The software comes with its own databases of standard fluids, pipe materials, pipe sizes & pipe fittings.

Users can also add their own pipes, fittings and fluids in to the Pipe Flow Expert Databases and the program will then work with the new data.



## EASY PIPE MODELING

Drawing a system is easy; select a tool from the Tool Menu, then click on the drawing grid to add tanks, join points (nodes) and discharge points.

Use the pipe drawing tool to add connections between nodes. If you make a mistake just use the undo feature to correct the error, or 'un-hook' the pipe and move it to a new position.

Our interface also supports Isometric modeling, making it easy to produce great looking 3D designs.

## EASY DESIGN UPDATES

If a node or other object is in the wrong position, use the move tool to drag it to a new position and the linked pipes will simply follow.

Designing with Pipe Flow Expert is easy; we've made it simple to draw a system, size pipes and specify materials, while ensuring the model is easily updated.

## PHYSICAL DATA

The model takes account of:

- Tank Elevation
- Tank Liquid Level
- Tank Surface Pressure
- Pipe Diameter
- Pipe Roughness
- Pipe Length
- Pipe Elevation
- Pipe Fittings
- Components & Valves
- Flow Demands
- Discharge Pressure
- Fluid Density & Viscosity
- Pump Performance: flow/head curve, fixed head, fixed flow rate

## RELIABLE CALCULATIONS

Pipe Flow Expert has a robust and reliable calculation engine that solves the governing flow and pressure loss equations using the Darcy Weisbach method & accurate Colebrook-White friction factors.

### Customer Testimonials:

*"Pipe Flow Expert has revolutionized the way we design, bringing a level of expertise to our work that has been instrumental in helping us to achieve greater energy efficiency in our fluid systems."*, A Truss

*"Great software, superlative service"*, National Research Council, Canada

## PIPE SYSTEM MODELLING

Use Pipe Flow Expert to model your pipe system: analyze and design cost efficient & energy efficient systems. Compare different designs and get instant and reliable answers.

Don't take chances with inaccurate hand and spreadsheet calculations that are prone to errors and which are difficult to update when changes are required.

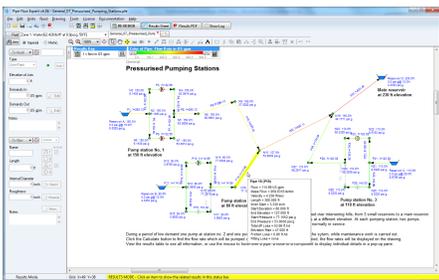
## POWERFUL ANALYSIS

Pipe Flow Expert employs a proven and robust calculation engine that will solve your system against the governing equations of pipeline systems to find the flows & pressures throughout your pipe system.

The software becomes an extension of the engineer's mind, leaving them free to focus on producing the best system design, rather than worrying about how they are going to solve & calculate a set of accurate results.

## VISUAL SOLUTION

The results schematic can be color coded to show results against a color gradient for flow rate, fluid velocity, friction loss, pressure drop, or other criteria, making it easy to visualize how your system will operate.



Hovering over an item shows you the detailed results data. You can view flows, velocities, node pressures, friction losses, component losses, pump operating points and more.

## TABULATED RESULTS

The result data for pipes, fittings, pumps, nodes, pipe materials, and energy losses can be displayed in the results tables. These tables can be exported to a Microsoft Excel spreadsheet with one mouse click, to provide a report for your client.

Node	Pipe No.	Material	Inner Diameter	Roughness	Length	Total	Mass Flow	Flow	Velocity
1	P1	Carbon Steel	1050.000	0.010000	1050.000	0.0000	45.538	0.47	0.523
2	P2	Carbon Steel	1050.000	0.010000	1050.000	0.0000	90.196	0.93	1.046
3	P3	Carbon Steel	1050.000	0.010000	1050.000	0.0000	135.294	1.40	1.569
4	P4	Carbon Steel	1050.000	0.010000	1050.000	0.0000	180.392	1.86	2.088
5	P5	Carbon Steel	1050.000	0.010000	1050.000	0.0000	225.490	2.32	2.593
6	P6	Carbon Steel	1050.000	0.010000	1050.000	0.0000	270.588	2.78	3.090
7	P7	Carbon Steel	1050.000	0.010000	1050.000	0.0000	315.686	3.24	3.587
8	P8	Carbon Steel	1050.000	0.010000	1050.000	0.0000	360.784	3.70	4.084
9	P9	Carbon Steel	1050.000	0.010000	1050.000	0.0000	405.882	4.16	4.581
10	P10	Carbon Steel	1050.000	0.010000	1050.000	0.0000	450.980	4.62	5.078
11	P11	Carbon Steel	1050.000	0.010000	1050.000	0.0000	496.078	5.08	5.575
12	P12	Carbon Steel	1050.000	0.010000	1050.000	0.0000	541.176	5.54	6.072
13	P13	Carbon Steel	1050.000	0.010000	1050.000	0.0000	586.274	6.00	6.569
14	P14	Carbon Steel	1050.000	0.010000	1050.000	0.0000	631.372	6.46	7.066

The result tables include:

- Flow Rates
- Fluid Velocities
- Pressure Drops
- Reynolds Numbers
- Friction Factors
- Fitting Losses
- Component Losses
- Node Pressures
- Pump Operating Points
- Pump Head Added
- Pump Inlet Pressure
- NPSHa at Pump Inlet
- Hydraulic Grade Lines
- Energy Usage Breakdown

## RESULTS VERIFICATION

A final verification check is carried out on the calculated results, to ensure that the pressure loss in each pipe for the calculated flow rate, is the same as the pressure difference between the pipe's calculated start and end node pressures.

Flow and pressure loss calculations produced by Pipe Flow Expert have been verified against the published results of over fifty systems, which are detailed in Results Verification Document.

## SAVE TIME, STAY AHEAD

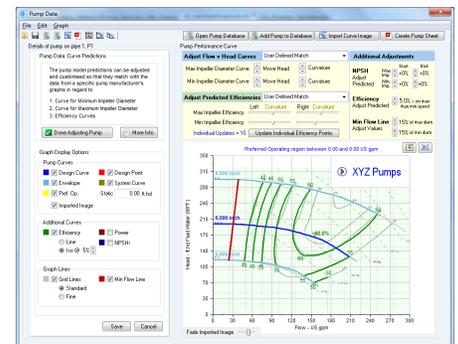
The integrated databases assist the user in selecting:

- Pipes: Materials & Diameters
- Fittings: Bends & 'K' factors
- Fluids: Densities & Viscosities
- Pumps: Flow v Head Point

Designing your system in Pipe Flow Expert is simple, intuitive & easy:

- Drag & drop items
- Move pipes and nodes
- Select & update design data

Stay ahead of your competitors, produce professional documented designs and win more business.



## UNBEATABLE VALUE

Pipe Flow Expert license costs are often recovered after using the software on a single modeling job.

Our unbeatable pricing makes it easy to justify the license cost, and that's why Pipe Flow Expert has become the compelling choice for engineers in over 75 countries worldwide.