PIPENET IS THE SOFTWARE



COMPLETW TOOL FOR NETWORK FLOW ANALYSIS

INTRODUCING PIPENET

PIPENET is a powerful software tool for flow analysis of pipe and duct network. **PIPENET** starts at the design phase, providing the means of performing calculations such as pipe sizing and pump selection under steady state conditions. At the other end of the spectrum, **PIPENET** computes the hydraulic transient forces necessary for pipe stress analysis and pipe support design under transient flow conditions.



PIPENET runs under Microsoft WindowsTM, making full use of the technology it offers. The input is through pull down menus, dialog boxes, etc. The output can optionally be sent to Microsoft WordTM or WriteTM for test processing and incorporation into design reports.

PIPENET is supplied as independent modules, giving a choice of solutions for the user's particular needs.

PIPENET Standard Module is the perfect tool for solving general flow problems with liquids, gases or steam.

PIPENET Transient Module is ideal for unsteady state problems such as "water hammer", "steam hammer" and calculation of hydraulic forces necessary for pipe stress analysis.

PIPENET Spray/Sprinkler Module is exceptional for the design of fire protection systems, whether they be deluge, ringmain or sprinkler.

PIPENET is a very flexible program, offering a wide selection of units, user defined pipe schedules, fittings libraries and pump characteristics. Shortcut facilities within **PIPENET**, such as repeat and replicate for duplicating single items or complete sub-systems, allow the user to save valuable project time.





PIPENET - STANDARD MODULE

The PIPENET Standard Module is for general flow analysis in networks of pipes or ducts, carrying liquids, steam or gases. Water properties are built-in and steam properties comply with the IFC67 Standard. A database of gases is provided in the program to which user-defined gases can be added.



With the PIPENET Standard Module the network can be as simple or complex as necessary, and can be made up of pipes, ducts, fittings, pumps, fans, check valves, control valves, nozzles, filters, orifice plates and other models. Control valves can be set for pressure, flow, differential pressure or valve position. The range of fittings available in the program is from the Crane manual. The user can add others which can then be stored in a library.

The PIPENET Standard Module has powerful pipe sizing capability. The user can define pipe schedules from which the program will select the appropriate nominal sizes.

Pumps and fans can be connected in series or in parallel, anywhere in the network. The PIPENT Pump/Fan Module can be used to create libraries of pumps and fans, which can then be inserted anywhere in the network.

The PIPENET Standard Module includes several useful features, such as checking for cavitation, correction for ambient pressure decrease with height, calculation of hydraulic gradients and modeling of leaks.

Pipe Label	I	- Fitings Available Selected		
Fiput Node	9	1 Std 45" ebow 2 Std 90" ebow 2 Std 90" ebow D thefa solve	1 1	
Dulput Node	010	3 Long Radius albox	NG 2	
Bore (nm)	150	4 Tee or Cross 5 Bate Velve		
Longto (m)	162.5	6 Swing check valve		
Elevation (n)	0	8 Ball valve		
CFactor	90	a screent vave		
Flow Status	nomal 💌			

- Pressure loss
- Pipe sizing
- Pump selection
- Liquids, gases and steam
- Fittings library



PIPENET - TRANSIENT MODULE

The PIPENET Transient Module provides a speedy and cost-effective means of in-house rigorous transient analysis. The PIPENET Transient Module can be used for predicting pressure surges, calculating hydraulic transient forces or even modeling control systems in flow networks.

nit System:	User Jefne				
Length	Diameter	Velocity	Density	Viscosity	Volume
• m	C metree	€ m/s	I kg/m²		C m ²
🔿 it	🖝 mm	C ft/s	C Ibyfe	CCp	itree
🔿 yds	C notes	a series and series	C spec. grav.	C b/R b	CIP
Flowrate ty	pe	Pressu	e type	C b/ft s	Time
🔿 volume	@ mass	C abs	🕈 geuge		· secz
Elowiaio		Pie	ASURO		C mine
· kovs	C h/min	C	Pa C ft of	in id	C hours
C kg/min	C b/h	G Bar C in of water			Mass
ka/hr	C tons/ht	C	psi C kgl/	/oni ²	l≎ kg
⊂ ь/а	C tons/s	C	m of fluid		Сь
Buk/Youn	g's modulus	Tempera	sture Force	Toto	que
C Pa	C kgf/mr	C Kelvi	n 💌 Newt	cns 🖝 l	V.m
🖲 GPa	C psi	@ Centi	igrade C Is low	се С I	LF R
kgf/cm	с рле	C Farer	nheit		
nertia					
🔹 kg.m²					

The PIPENET Transient Module can model networks with items such as pipes, operating valves, variable speed pumps, air release and vacuum breaker valves, accumulators, pressure and flow transmitters, PID controllers and transfer functions to represent the dynamics of instruments and valves.

Spec Label	2	dependent für state mit mit de	Concerns of Concerns
Spec Type	Pressure	= 5 lait time (secs)	05
	Flowate	Start vake	1
	Seal Containing	Stop time (secs)	0.8
Vade	446	Stop value	0
	Constant	Description of the second	1
Time function	Powertamp	caparient	
	Exponential		
	🖉 Damped sine way 🦉	Per Constanting	
	Asymmetric pulse	Providences Colores	
	Step Proble	1 Sector States and Sector	

Not only can the PIPENET Transient Module predict cavity separation, it can actually model its formation and collapse. A wide choice of functions and tables are available for setting up boundary conditions.

The PIPENET Transient Module can find its own initial and final steady states or use initial values given by the user. The time step for calculation can be determined by the program or specified by the user, as can time steps for tabular, graphical and forces output.

With the PIPENET Transient Module any variable can be selected by the user to be output in graphical or tabular form. Hydraulic transient forces can be output to a separate file, which can then be used by pipe stress analysis programs for further processing.



- Water hammer
- Surge analysis
- Hydraulic transient forces
- Cavitation modeling
- Graphical and tabular output



PIPENET-SPRAY/SPRINKLER AND HALON/CO₂ MODULES

The PIPENET Spray/Sprinkler Module is specially developed for the design of fire protection systems in accordance with the NFPA13 and NFPA15 rules. The PIPENET Spray/Sprinkler Module is ideal for all types of water-based systems, including deluge, ringmain, sprinkler and foam solution systems.

Schedule	90		Çifacilor (120
Non Ban	10 1	lan sub	Lining (optional)
25 40 90 80 100 200 200 200 200 300 300 400 400 500 600	24,003 37,893 48,9968 73,8902 97,0008 140,998 140,998 140,998 140,998 140,998 140,998 140,998 140,998 140,998 140,007 456,008 548,005	ನ ನನಗ ನನಗ ನನಗ ನನಗ ನನಗ ನ ನ ನನಗ ನನಗ ನನಗ ನನ	Moterial name v I hickness (nm) uned Design information P Velocities C Pressure drops Boet(s) none Design velocity (n/k) undef Utrain Design Avoid in Design Sigt Valuesty

The PIPENET Spray/Sprinkler Module can be run with several options for deluge and sprinkler systems. For example, with the most remote nozzle option, the **PIPENET** Spray/Sprinkler Module will determine the hydraulically most remote nozzle and set its flow to the required value. The user can flow specify the inlet pressure or alternatively, the overall flow density can be made to match the requirements of the design rules

The PIPENET Spray/Sprinkler Module is ideal for firewater ringmain. Pump selection calculations may be carried out, or alternatively, manufacturer's data for pumps can be used. it is possible to perform calculations for different fire scenarios, and model breaks and blocks in the network with ease. Minimum flow control valves can also be input.

A network in PIPENET Spray/Sprinkler Module can have up to 5 pipe types, which can be lined or unlined. The program has 8 pipe schedules built-in, and the user can add other pipe schedules which can be stored in library. Fittings data are built-in, in compliance with the NFPA rules.

The PIPENET Halon/CO₂ Module is suitable for systems employing an inert gas such as Halon 1301 or CO₂, complying with the requirements of the NFPA12 and NFPA12A rules.



- NFPA13, NFPA15
- Deluge, ringmain, sprinkler
- Fire pump selection
- Most remote nozzle option
- Multiple pipe types