



PIPENET - STANDARD MODULE

The PIPENET Standard Module is a powerful tool in the design of single phase steady flow of fluids in pipes. It provides a quick and cost-effective means of designing real life problems. Summarised below are salient features of the Standard Module:

Network

Networks can be defined from a wide choice of elements - pipes, ducts, nozzles, pumps/fans, filters, non-return valves, control valves, leaks, fixed pressure drops, orifice plates, properties and specifications.

PIPENET has built-in data of fittings (Crane), gases, steam (IFC67 standard) and pipe schedules (ANSI, JIN and DIN). Users can also create their own pump, pipe schedule, control valve, fittings and fluids data libraries that can be used in any network.

PIPENET allows the properties of the fluid to be constant or to vary in the network system.

Fittings

Multiple fittings can be inserted on a pipe and it is not necessary to treat them as separate entities. They are simply defined as attributes of a pipe. This is a powerful feature of PIPENET. PIPENET can also calculate the k-factors of the built-in fittings.

Schematic Capabilities and On-line Help

A network can be defined using schematic or text input. However, a text input network can also be displayed using the schematic. Results can also be displayed on the schematic. On-line help is also available for more information on the features of PIPENET.

Pipe Sizing and Blocked and Broken Pipes

PIPENET has a very powerful pipe sizing capabilities. It can select standard nominal bores from user-defined or built-in pipe schedule data. A blocked or broken pipe can also be modelled in a network.

Cavitation

The program will detect and report the likely occurrence of both deaeration and vapourisation cavitation.

Orifice Plates

Restriction Orifice plates can be modelled in compliance with Crane, Heriot-watt and BS1042, taking into account downstream pressure recovery. Given the pressure drop the orifice diameter is determined, and vice-versa.

Modelling of Gases and Low-Pressure Gases

These can be modelled using standard pressure loss correlations and correction factors, making the module suitable for the design of gas distribution systems.

Filters

A filter is available for use where accurate modelling is required. On the other hand, filters can simply be modelled as fittings.

Leaks

This is a powerful feature of the program and is particularly useful for flow analysis of ventilation systems where the handling of leaks is very important. Leaks are modelled in accordance with the requirements of BS5588. Leaks may be defined as between two nodes of a network (for instance to represent a leak around a door between rooms) or to the atmosphere.

Control Valves

This regulates flow or pressure in a network. The valve setting can be specified by the user or based on a sensor - pressure at a node, flow in a pipe or pressure difference between two nodes.

Hydraulic gradient capability

Hydraulic gradient capability calculations can be performed for incompressible fluids.

Nozzles can be modelled using fundamental equations of flow.

Ambient Pressure Correction — particularly used in ventilation system calculations involving tall chimney stacks, automatic correction for the variation in ambient pressure with height is available.

Output

Output reports can be created using Word, Write or PIPENET Output Browser.

Pump/Fan

A standard PIPENET pre-processor is provided for the creation of libraries of performance characteristics. These can be readily accessed to include pumps/fans in networks. A given pump type need therefore be input to the module only once for it to be available for repeated use in different network designs. Pumps, including booster pumps, can be connected in series or parallel at any point in the network.