



VISUAL FLOW[®]

Design and Modeling of Safety Systems and Pressure Relief Networks

The VISUAL FLOW software application is a modern, intuitive application for designing, modeling, and documenting plant fluid-flow systems. Receive fast, reliable, and accurate solutions for applications that range from line sizing and vessel depressuring to the rating of complex relief systems. Process and safety engineers can design, rate, and analyze processes with this rigorous, steady-state simulator.

Benefits

- Safer Designs and Operation
- Faster Regulatory Documents, Compliance
- More Efficient Flare Network Modeling
- Reduced Capital Cost
- Reduced Operating Cost
- 5-20% Typical Savings

Applications

- Flare Network
- Transfer Lines
- Utility Systems
- Critical, Multiphase Flow
- Line Sizing
- Relief Valve Sizing & Rating
- Vessel Depressuring

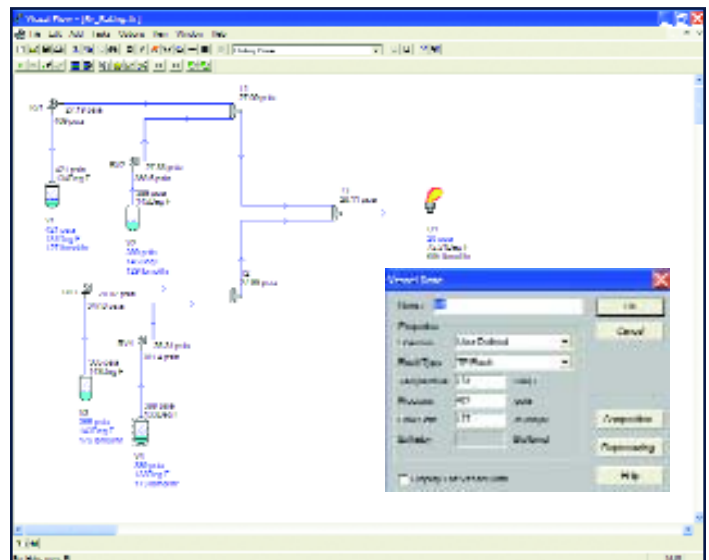
Industries

- Oil & Gas Production
- Gas Processing
- Refining
- Petrochemicals
- Chemicals
- Engineering & Construction
- Consultancy

ACCURACY

VISUAL FLOW handles the toughest single and multiphase fluid-flow systems by using point-by-point thermodynamics and pressure drop calculations. Applications include relief networks, systems containing any configuration of multiple flares, relief valves, knock-out drums, and loops. VISUAL FLOW automatically checks for critical flow at all junctions and expansion points within relief systems. Rigorous flow models of utility networks ensure reduced capital costs and improved plant operation. VISUAL

FLOW calculates fluid equilibria and physical properties using industry-standard thermodynamic packages with comprehensive pure component databanks using SIM4ME Thermo. SIM4ME Thermo provides considerable flexibility for defining components and allows the users to construct customized thermodynamic method slates. Additional component data can also be input for non-ideal chemical systems, including binary interaction parameters. Petroleum refiners can input petroleum pseudo-components and assay curves to characterize even the most complex streams. VISUAL FLOW uses industry-standard multiphase methods to calculate pressure drops, such as Beggs and Brill or



Lockhart and Martinelli. It incorporates special modifications of the Beggs and Brill method for high-velocity calculations at or near critical flow and has the capability to size single and multiphase relief valves based on commercially available technology databases.

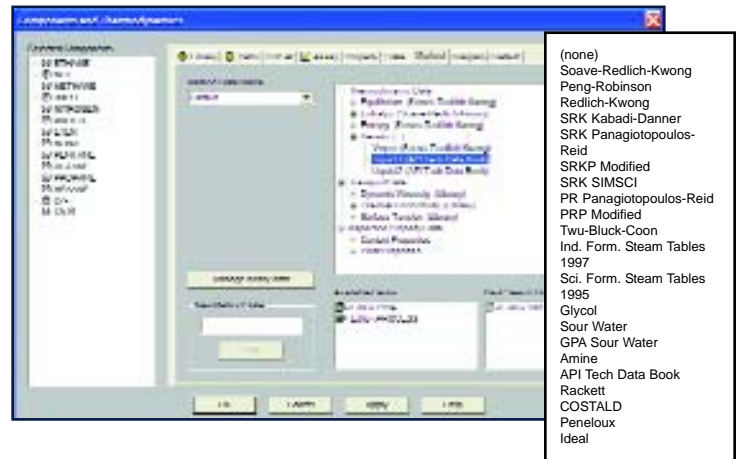
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INTUITIVE GUI

An easy-to-use environment for managing your entire plant piping system. VISUAL FLOW uses a Microsoft® Windows® interface with a Multiple Document Interface (MDI) that enables users to open and run multiple simulations simultaneously. A simple flow diagram describes the overall system structure with point-and-click access to data entry menus. Defaults can be defined for system components or any units of measure for input or output data. By pointing and clicking the mouse, complex piping isometrics can be defined using the interactive drawing tool. Pipe fittings such as elbows, tees, and expansions are automatically inserted by the program and then drawn to the screen. At any stage, context-sensitive, on-line help is readily available.

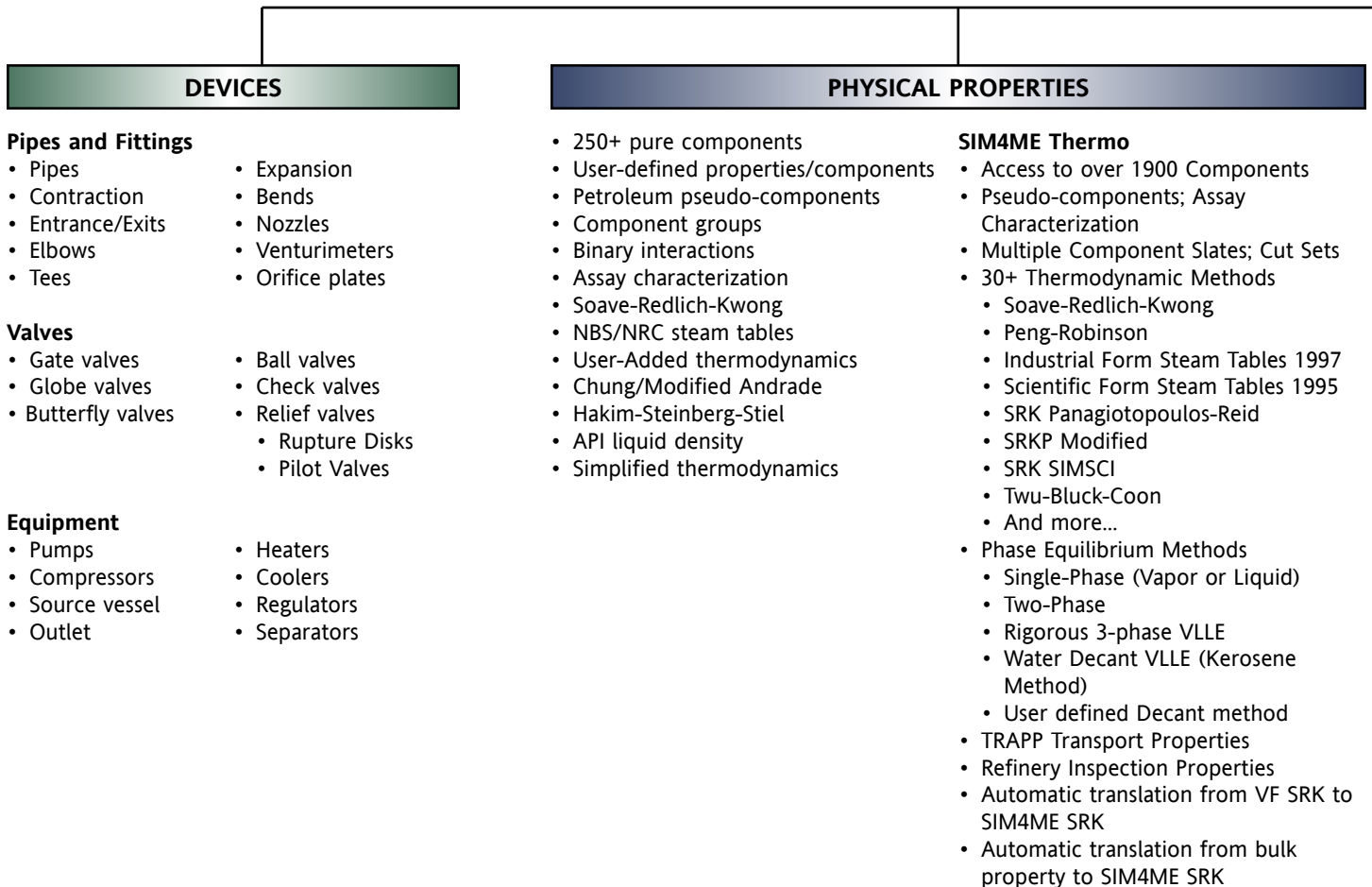
VISUAL FLOW also provides a complete case study manager where users can add a new case using any previously-defined case as the base case. Similar to any Windows application, data can be easily copied between simulations or other applications

using the Windows clipboard. Graphical data or tabular data can also be exported to spreadsheet programs such as Microsoft Excel or Word.

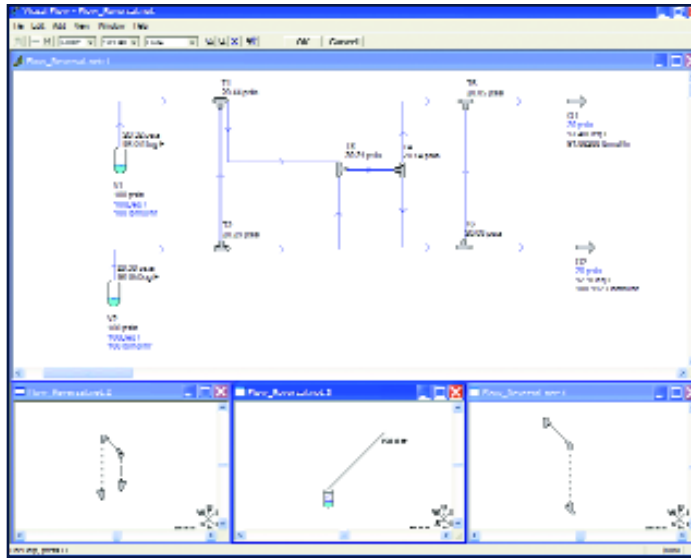


CUSTOMIZABLE - RUNNING FROM EXCEL

VISUAL FLOW can run from third-party applications like Excel. A unique modular structure provides unlimited extensibility and customizations. Using an OLE compatible architecture, it is easy to add private functionality to the program through the development of proprietary calculation objects.



The program then automatically uses the objects at run time without the need to re-link the proprietary code. Customizable areas of the application include single and multiphase pressure drop routines, thermodynamics, and relief valve sizing calculations. Custom reports can be generated using Crystal Reports™ and accessed through the report manager. Using the database manager, new pure and pseudo-components can be defined and used within phase equilibria and physical property calculations.



ductivity of teams assigned to complete this task either as part of a new design, a plant revamp, or an on-going operation. The case management capabilities provide an efficient means to ensure that a full analysis is completed for all scenarios from a limited number of base cases.

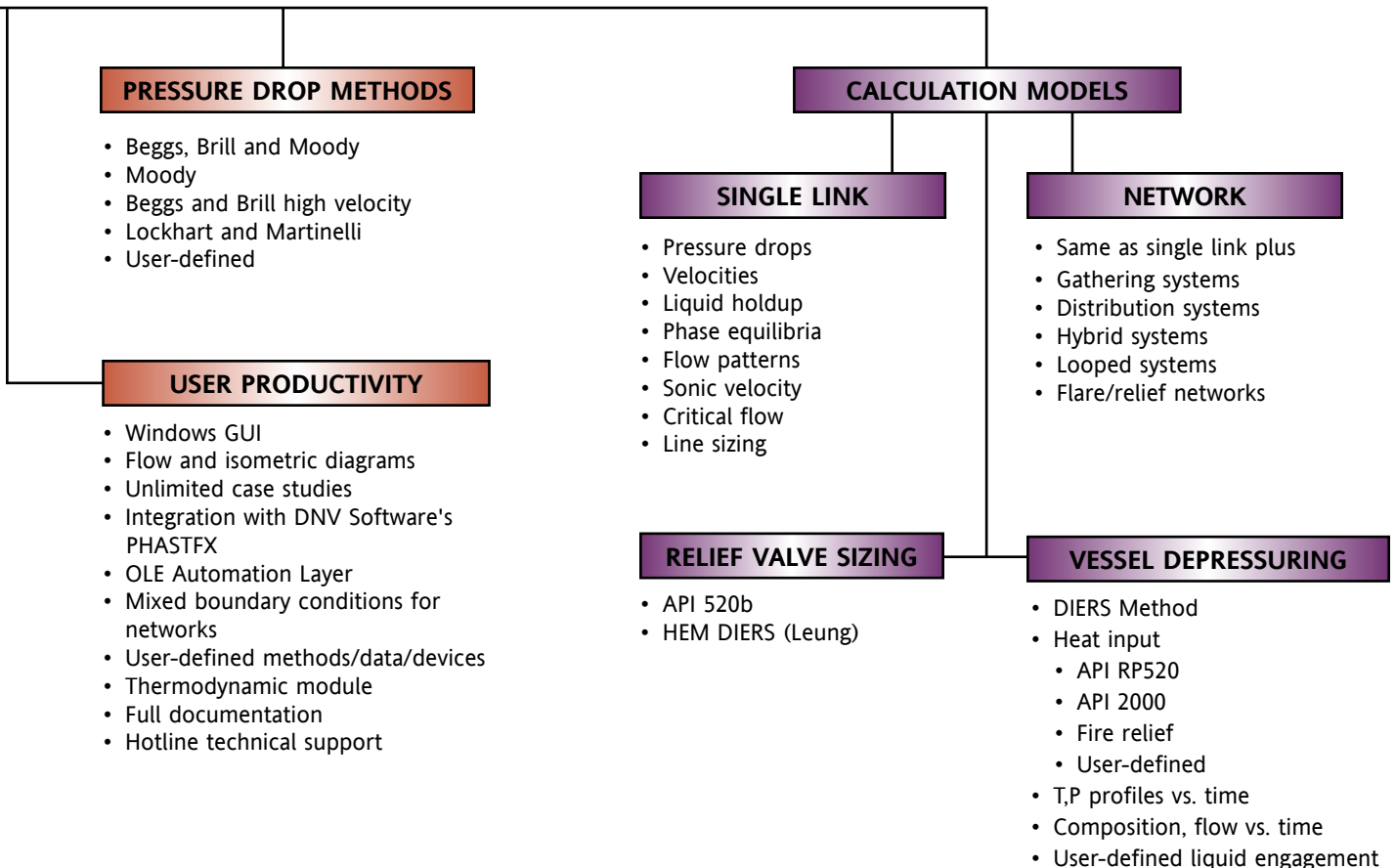
PHAST^{FX} INTEGRATION

A partnership with DNV Software yielded a link between SimSci-Esscor's VISUAL FLOW and DNV's PHAST^{FX}. PHAST^{FX} is a subset of PHAST and contains the major flammable and

SAFETY & REGULATORY COMPLIANCE

The process industries are being challenged by regulatory agencies such as OSHA or HSE to check the safe operation of their plants. A standard requirement of this assessment is a comprehensive model of the plant's flare relief systems with full documentation of the network structure, control systems and strategy, and maximum relief rates capacities. VISUAL FLOW is designed to address this need and improves the pro-

explosion models including jet flame, pool fire, and boiling liquid expanding vapor explosion (BLEVE). The link between PHAST^{FX} and VISUAL FLOW allows users to pass stream information at the base of the flare to PHAST^{FX} for initializing one of PHAST^{FX}'s jet flame routines. Additionally, users can make estimations for other flammable scenarios including pool fire or BLEVE, or for the calculation of various vapor cloud explosion scenarios.



HARDWARE REQUIREMENTS

VISUAL FLOW requires a computer with an Intel Pentium processor with 128 MB of RAM. Performance is optimized with at least 256 MB RAM.

PROCESS ENGINEERING SUITE (PES)

PES is a consistent set of tools for engineering design and operational analysis. This integrated suite of software readily interfaces with other applications commonly used by process engineers, thus enhancing productivity in the plant lifecycle. PES can be used for oil and gas production, refining, petrochemicals, chemicals, pharmaceuticals, and polymer plant modeling.

PRO/II® General-purpose process flowsheet simulation and optimization.

HEXTRAN® Comprehensive heat transfer simulation and pinch analysis.

DATACON™ Plant gross error detection and data reconciliation.

INPLANT Multiphase, fluid flow simulation for plant piping networks.

VISUAL FLOW® Design and modeling of safety systems and pressure relief networks.

ABOUT SIMSCI-ESSCOR

SimSci-Esscor is a leader in the development and deployment of industrial process simulation software and complete performance solutions for a wide variety of industries, including oil and gas production, petroleum refining, petrochemical and chemical manufacturing, electrical power generation, mining, and engineering and construction. Supporting more than 750 companies in over 70 countries, SimSci-Esscor products and services enable clients to minimize capital expenditure, optimize facility performance, and maximize return on investment. SimSci-Esscor is brand of Invensys Process Systems, owned by Invensys, plc. www.simsci-esscor.com

ABOUT DNV SOFTWARE

DNV Software is an independent software vendor and reseller specialized in developing innovative software solutions for design, construction, strength assessment, risk and information management. DNV Software is serving more than 3000 clients in 55 countries. For more information on DNV Software, please visit www.dnv.com/software



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