InstruCalc v8.1

제어 밸브(Control Valves) – 유량 부속기기(Flow Elements) – 안전 장치 (Relief Devices) – 유체 물성(Fluid Properties) – 배관 압력손실(Pipe Pressure Loss) – 수격 현상(Liquid Waterhammer) 부분에서 공정 사이즈의 계산이 가능합니다.

- 50가지 이상의 계장기기의 편리한 사용과, 정확한 규격산정이 가능한 기기 규격계산 소프트웨어 **InstruCalc 8.1**에서는 제어 밸브, 유량 부속기기, 안전 장치의 크기를 계산하고, 항목들에 대한 데이터시트 작성과 계장기기의 요약을 작성할 수 있습니다. 또한 데이터 시트는 리포트 작성용 DB로 활용 가능 합니다.

- 현재 Control Valve와 Flow Element 모듈에서 사용자의 계산결과를 계산, 표시, 출력 할 수 있습니다.

- 사용자는 용도에 맞게 설정한 단위 세트와 어떠한 공학단위의 선택도 가능하며, 계산과정 중에도 단위의 혼용과 변경이 가능합니다.

- 제어 밸브(Control Valves) – 유량 부속기기(Flow Elements) – 안전 장치(Relief Devices) – 데이터 처리(Process data)로 구성된 메뉴는 74개 이상의 루틴으로 나누어 집니다.

- 혼합, 단일 성분 상태로 된 54가지 유체, 또는 66가지 기체의 유량 조건의 공정데이터를 계산할 수 있습니다. 사용자에 의해 추가된 유체, 기체 파일은 업데이트가 가능합니다.

- 오리피스 사이즈, 유속, 차압구간(범위)를 계산하며, 이에 따른 최적의 정확성을 지닌 유속을 선택 가능합니다.

- 오리피스의 적절한 사이즈를 제시하고, 보정해 줍니다.

What InstruCalc does for you

InstruCalc is a set of engineering programs for calculating control valve, relief valve, pressure-relief devices and various flow element sizes. It also prepares data sheets and instrument summary reports. It is an engineering program rather than an application program inasmuch as it is capable of determining the basic engineering data and requirements for the equipment rather than just using the data to determine the size required.

It consists of more than 74 programs divided into four main parts:

1. **Control Valves** for liquid, gas, steam, and two-phase flow using the ISA formulas. There are programs for calculating C_v and analyzing for citation within the valve, critical flow and flashing through the valve, and noise generated by the valve. The C_v is compensated where necessary for these and the piping geometry effects. Messages are displayed to guide you to an optimum valve selection.

2. **ISO Flow Elements** for flow and restriction orifice plates; flow nozzles and venturies; gas, steam, vapor, and liquids; flange, radius, pipe, and corner taps. Concentric, eccentric, segmental, quadrant edge, and conical plates. Calculates Beta ratio and orifice bore. Calculates flow for a selected bore. Compatible with ISO 5167 updated 2003.

3. **Process Engineering Data** programs that determines line pressure drops for gas and liquids, calculates compressibility factor, flowing density, vapor pressure and temperature, latent heats at pressure and temperature and physical properties of mixtures. These programs are useful for many other engineering activities such as centrifugal pump line loss calculations and determining pressure available for control valve pressure drop.

4. **Relief Devices** for pressure-relief devices, rupture discs, and breather valves. Liquid and gas application. Calculates API or ASME size for known flow, thermal expansion, and external fire. The external fire program has the option of either the API or the NFPA heat input methods. It also calculates the maximum flowrate for the selected valve and the maximum back pressure, which maintains the required flow as well as the relieving forces.

All device calculation and data sheet information can be saved for later recall. Printouts can be obtained of calculations, data sheets, and instrument summary reports. Any type of engineering unit can be used in the calculations. All conversion factors are contained within the programs to change from one unit to another and to convert the values of the input data. Data can be imported and exported to and from the programs using ASCII files.

The program not only calculates the sizes of control valves, flow elements, and relief devices, but it also produces data sheets for the calculated items. In addition, it lets you prepare instrument summaries and use the data sheets as a database for generating reports.

Each module of InstruCalc allows you to perform these functions:

- Make calculations
- Prepare data sheets
- Prepare summary reports

In addition, the Control Valve and Flow Element modules now have graphing capabilities for the performed calculations.

What's new in InstruCalc Version 8.1

1. Engineering Standard upgrades
    - Latest CV ISO Standard ANSI/ISA 75.01.01-2007
    - Pressure Relief Devices Program follows API 520 2009

2. Engineering Improvements
    - Technique for showing cavitation in restriction orifices and venturi meters (Flow Elements)
    - Expanded vortex meter sizes available – up to size 36 (Flow Elements)
    - Incorporation of Z-factor in gas-flow for sizing Flow Elements
    - AGA8 option for Natural Gas in Flow Elements
    - Added option to specify outlet pressure of orifice Flow Element.
    - Added Text box at the bottom of the calculation for comments such as exit angle of venture meters
    - PRV Program provide option to calculate flow rate for a known size RV.
    - Clarify status to show more clearly flashing, cavitation and choking of control valves.
    - Outlet of control valves - flow velocity at outlet flange
    - Allow for Density input instead of Specific Gravity in all Programs
    - Allow absolute and gauge units for all pressure inputs

3. Operational Improvements
    - Program runs in Windows 7, 64 bit.
    - Rearrange appearance of program – basic form set-up and day to day options – removed them and clarified their use.
    - Excel Import/Export for process data
    - Database Print manager with options to print all of the database stored data and all the calculations or any combination of them.

Old Data Files Are Still Compatible

- Provision has been provided to transfer Version 5.x data to MS Access for Version 8 use .

New Ability to Transfer Data between Files

- Data files are now Microsoft Access. Version8.1 now saves all calculated data. There are now separate tables for calculation data, units' data, data sheets, pressure drop calculations, chemical properties composition data and water hammer data. This allows for data to be available for manipulation.

We think you will find the InstruCalc 8.1 for Windows better than ever. If you have any suggestions, please write us and let us know. We will consider them for a newer version.

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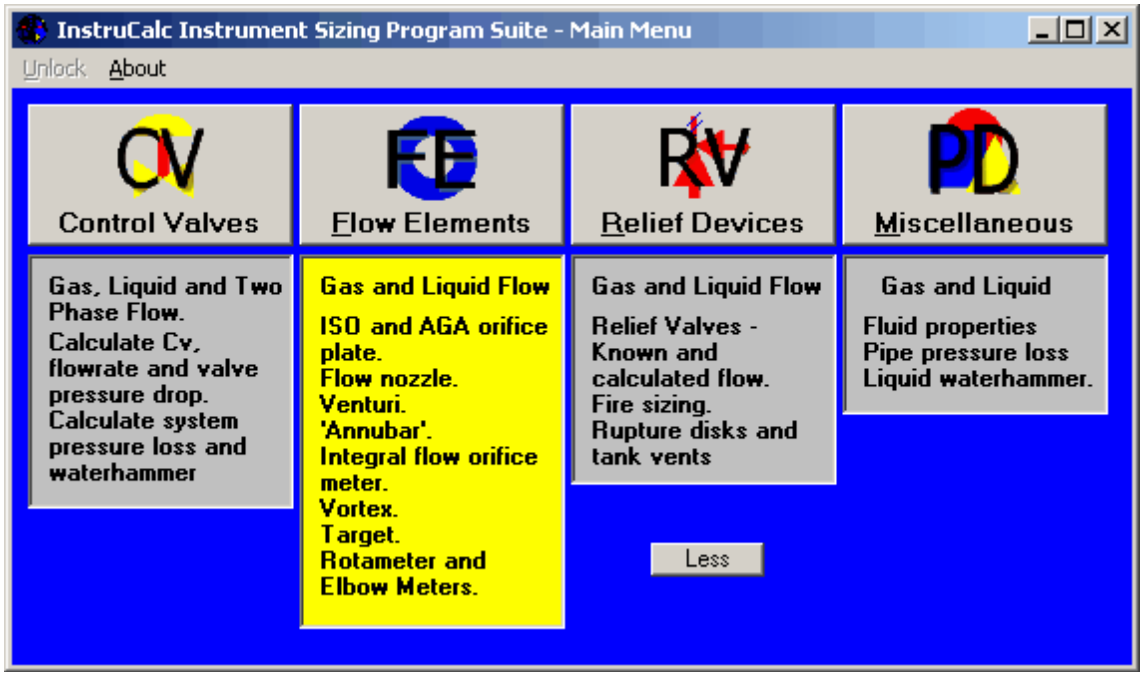
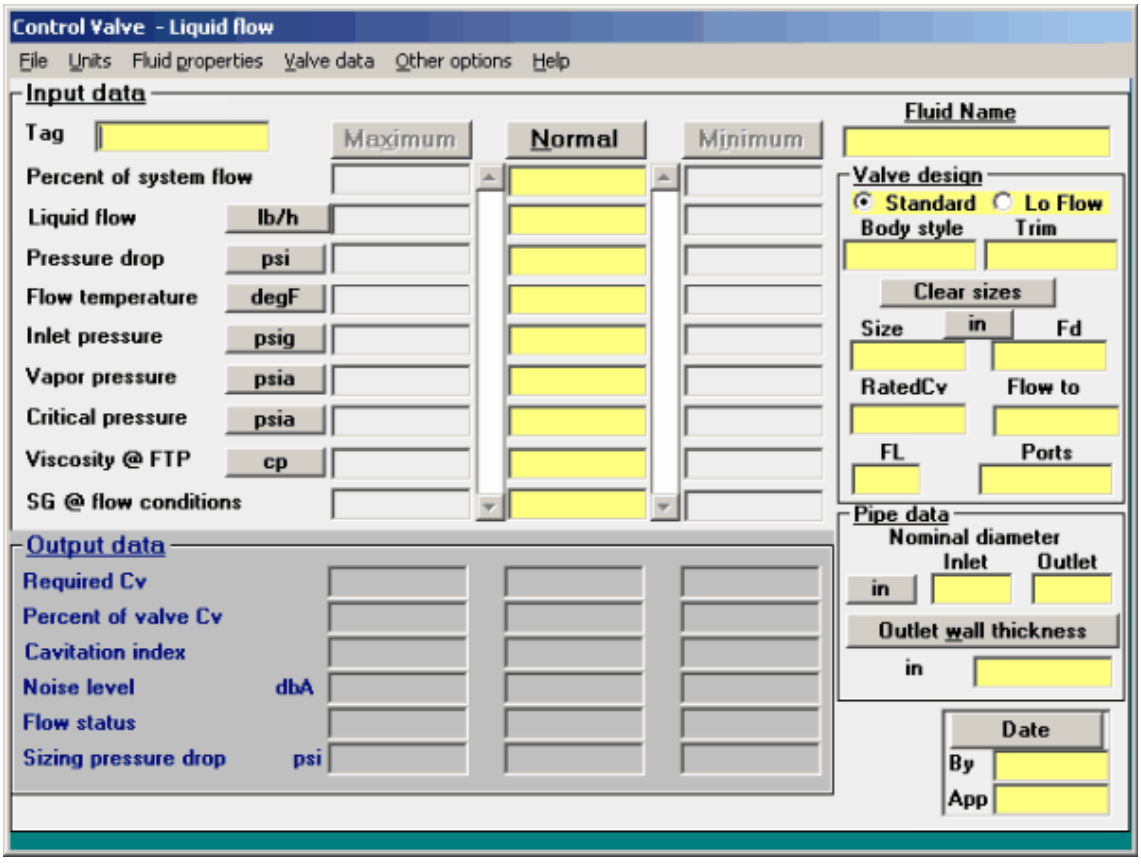
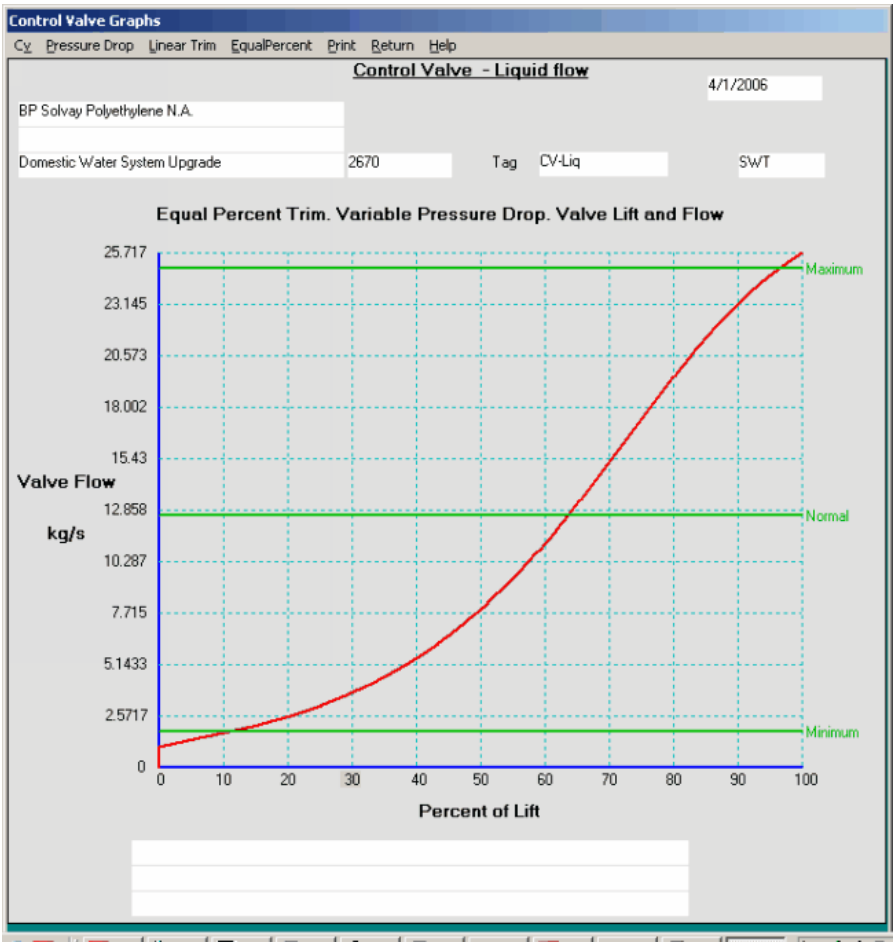
Sample Screen Shots



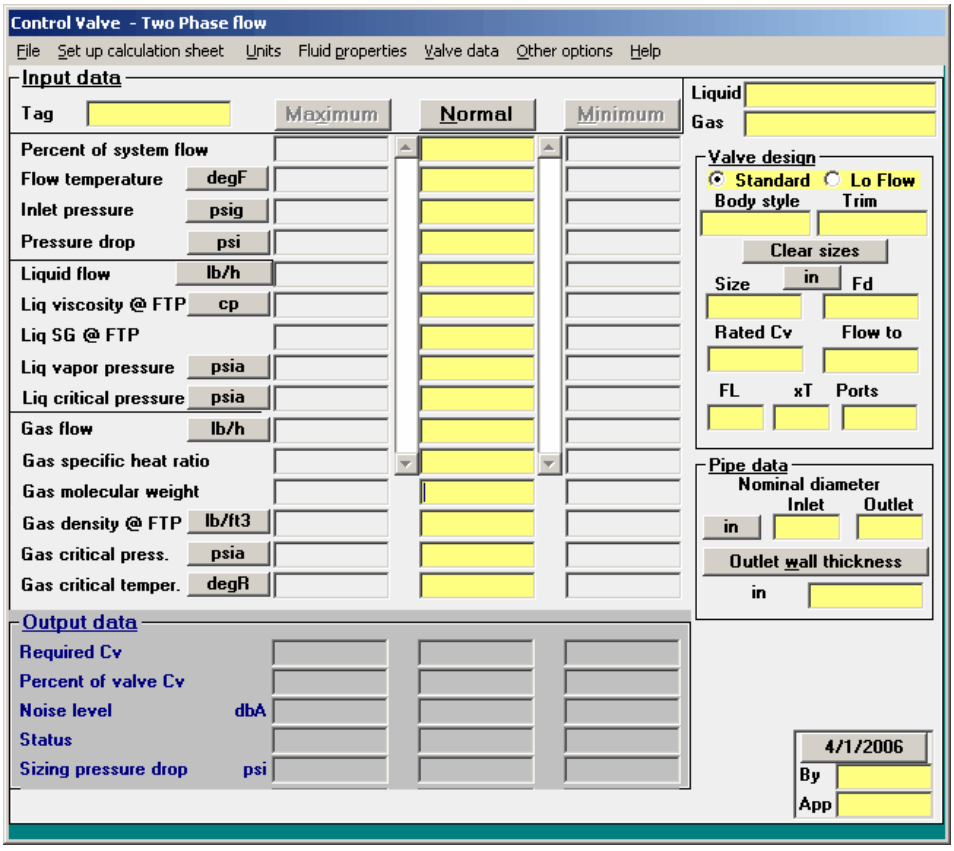
Main Menu Screen



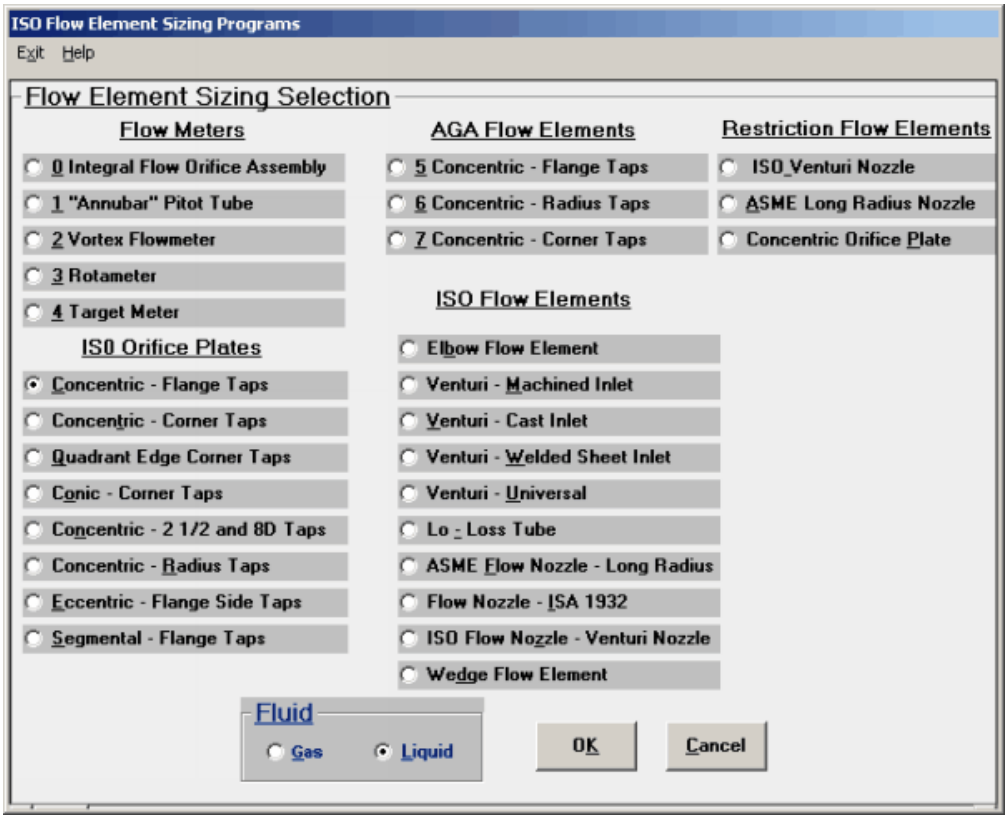
Control Valve - Liquid Flow



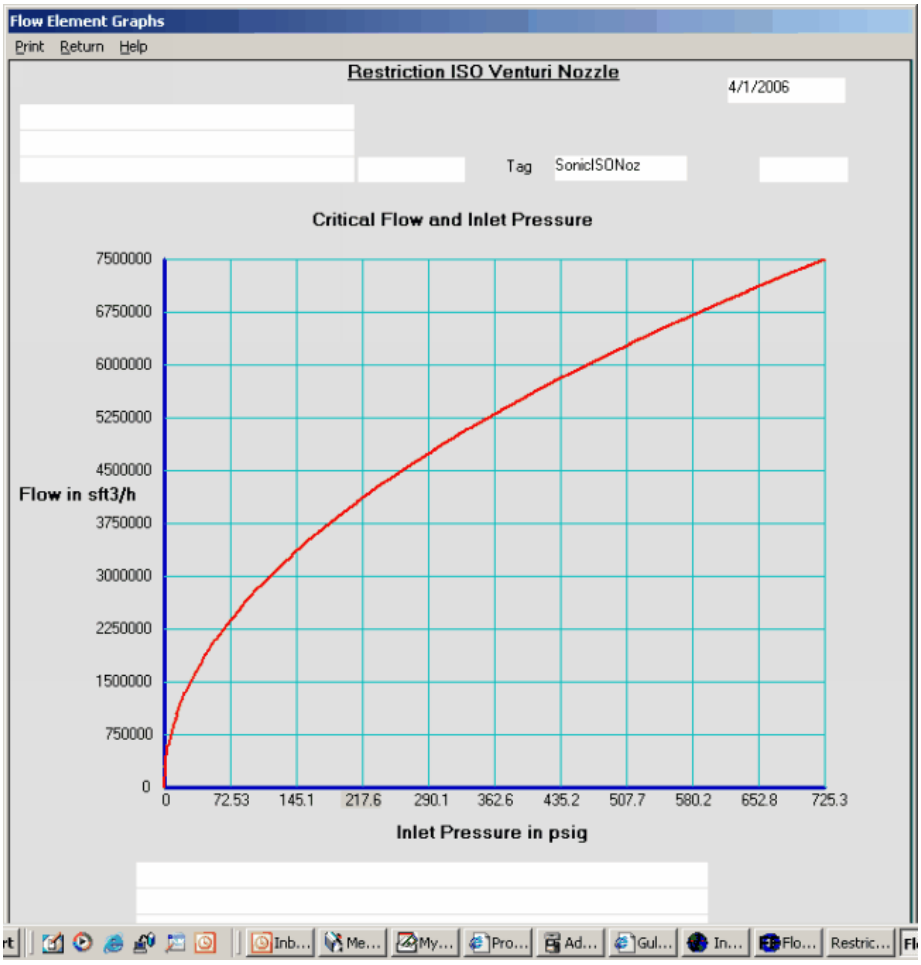
Control Valve Graph



Control Valve - Two Phase



Flow Element Selection Screen



Flow Element Graph