

Integrated design and optimization of components in industrial plant systems

All common plant component calculations in a single software product.

CONVAL[®] bundles extensive calculation functionality for components and processes in industrial plant systems. The available spectrum of calculations extends from control valves and throttling elements through pipes to heat exchangers. Integrated property calculations (property database and optional, multi-parameter thermodynamic equations of state with GERG 2004) as well as comprehensive, extensible databases for control elements, safety valves, materials etc. are included as standard.

The PC software for engineers, planners and operators of industrial plants.

Plant structures often incorporate a large number of components that have to be designed and calculated precisely. CONVAL[®] is a software package that aims to simplify this element of plant operators' and planners' work.

More than just a calculation.

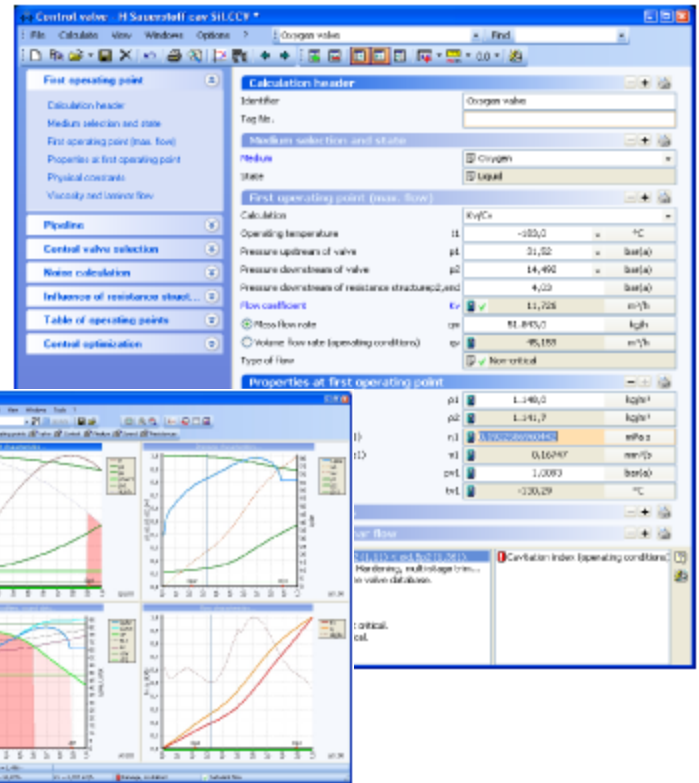
In addition to calculating and optimizing, the software package is also capable of exchanging applied and accumulated knowhow with CAE systems such as comos pt, INtools, Aucoplan, CIMS2000, MSR-Office, and PRODOK (in preparation: AutoPLANT and Sigraph), as well as with other applications like Excel and Access. It is powerfully designed to integrate seamlessly into a modelIT environment, and its maturity is reflected in such aspects as quality assurance and documentation.

CONVAL[®] cuts costs.

CONVAL[®] was developed by experts in industrial chemistry, experienced apparatus manufacturers and plant engineering specialists to enable potentially cost-cutting resources to be efficiently deployed whenever new plants are planned or existing plants modernized and when control elements, flow meters, pipe components such as orifice plates, autoclaves, pumps and so on are designed and operated.

These resources facilitate:

- Shorter processing times for planning and engineering in general
- Lower costs for selecting the optimum equipment types while avoiding 'over engineering' as well as optimized management of process parameters, leading to improvements in product quality and quantity
- An integrated view of the overall plant that helps prevent design and planning errors
- Reduction of the total cost of ownership



CONVAL Modules Included

Control Valve – Calculation and optimization from the control engineering perspective

Control Valve (two phase) – Calculation and optimization of control valves with two-phase flow at the inlet

Steam Conditioning Valve – Calculation of the steam conditioning unit, including the required cooling water flow

Actuator Forces – Calculation of required actuator forces of globe valves

Differential Pressure Flow Element – Flow measurement according to ISO and ASME standards with orifice elements, venturi tubes, nozzles and pitot tubes

Restriction Orifice Plate – Sizing, adaptation and optimization

Pressure Loss – takes into account the pipe length, individual resistance and elevation differences

Pressure Surge – Pressure surge characteristics with variable closing times and different valve characteristics

Sizing – Cross-sectional area, jacket area, flow velocities, Joukowsky peak, etc.

Pipe Compensation – Calculation of the changes in length, pipe support loads and compensation (L or U bend)

Span Calculation – Takes into account the dead weight, insulating material and maximum permissible sag

Pipe Wall Thickness – Calculated according to the EN 13480 and DIN 2413 applies to a pipe subjected to an internal pressure

Shell & Tube Heat Exchangers – Sizing and recalculation of liquid-liquid shell-and-tube heat exchangers from the process engineering point of view

Condenser – Calculation of liquid cooled condensers

Material Data Calculation – computation of the characteristics of tubing and equipment materials

Safety Relief Valve – pressure losses, piping forces and two-phase flow according to AD, ISO, API and ASME

Tank Depressurization – a tank filled with gas is depressurized either into the atmosphere or into a second tank

Pump Motor Output – Determine the power requirement of pumps or fans

Substance Calculation – Calculates pressure and temperature related properties

Thermodynamic Module – Calculate and plot thermophysical properties of substances in the fluid phase

Regression – Graphical representation and adaptation of a curve to a series of measuring points

