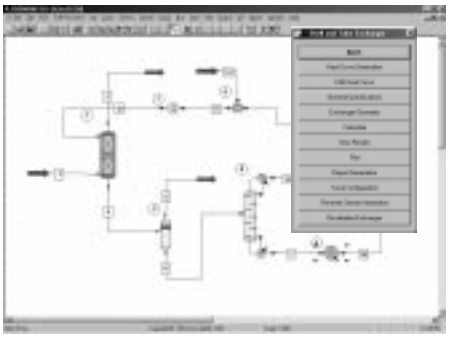
CC- Therm

The Heat Exchanger Program That Is So Sophisticated.. It's Easy!

Heat Exchanger Software



It's Easy Because It's a CHEMCAD Program?

If you know how to use CHEMCAD, you know how to use 95% of CHEMCAD-THERM, so the usual "new program learning curve" is virtually eliminated. Extensive help facilities are provided. Data is entered using intelligent input procedures and dialog boxes.

Throughout the processing industry, it's a well-known fact that no other simulation programs come close to CHEMCAD programs for ease-of-use.

It's Easy Because It's Integrated?

In heat exchanger programs, integration means accuracy, and accuracy starts with entering the process data. Here is where you will appreciate CHEMCAD-THERM's full integration, because process data is automatically transferred from CHEMCAD's flowsheets.

Furthermore, automatic data transfer eliminates the tedium and potential inaccuracies of manual data transfer. Best of all, CC-THERM uses the same Thermodynamics routines and physical properties databases as CHEMCAD.

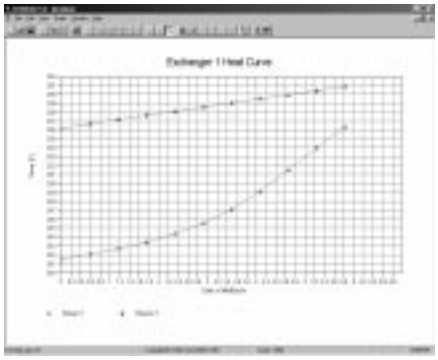
The problems and inconsistencies that typically occur when processes are designed using different programs are totally eliminated with CHEMCAD-THERM.

It's Easy Because the Expertise is Built In?

Built-in expertise means two things: First, CHEMCAD-THERM is rigorous and comprehensive. It is designed to handle your most complex heat exchanger rating or design , particularly the difficult problems. CC-THERM takes no short cuts, makes no assumptions, runs a full zone analysis and stringent stream analyses. And like all CHEMCAD programs, CC-THERM runs quickly and accurately.

Second, the program is intuitive in operation. Process engineers continually tell us how much they learn about heat transfer analysis just by using CHEMCAD-THERM. With our "on-line HELP" and our step-by-step data input screens, you can have an exceptionally high level of confidence in the accuracy of your rating or design.

So whether you work with heat exchanger problems daily or only occasionally, you'll enjoy that rare combination of power and simplicity found in CHEMCAD-THERM.



Chemstations™

CC-Therm

GENERAL FEATURES

- Interactive input, calculations, and review of results
- Help screens
- Flexible engineering units
- Extensive data checking
- Customized reports
- Graphical plotting of results
- Integration with CHEMCAD and CHEMCAD thermodynamics

TECHNICAL FEATURES

- Design and Rating modes
- Calculation of all TEMA types
- Tubeside process types:
  - Sensible flow (vapor or liquid)
  - Forced evaporation
  - Falling film evaporation
  - Vertical thermosyphon
  - Horizontal condensation
  - Vertical condensation
  - Reflux condensation
- Shellside process types:
  - Sensible flow (vapor or liquid)
  - Forced evaporation
  - Pool evaporation
  - Horizontal thermosyphon
  - Horizontal condensation
  - Vertical condensation
- Exchangers may have evaporation on one side with condensation on the other with any combination of subcooling and superheating
- A full stream analysis is performed on the shellside
- Zone-by-zone analysis is performed (2-31 zones, user defined)
- The conditions and properties are automatically generated at all zones and can be modified by the user
- A complete library of materials is incorporated for tubes, pipes, shells, bonnet, and tubesheets
- Dry wall or wet wall condensing
- Thermosyphon simulation mode

SHELLSIDE

- Shells in series or parallel
- Shell as pipe or plate
- Sealing strips permitted
- Diameter or maximum diameter may be specified

TUBESIDE

- Tubes may be bare or fin
- Turbulators may be used on the inside of the tube
- User may specify tube OD, gauge, pattern, and pitch
- Tubesheet thickness calculated to determine effective area
- U-bend radius and/or efficiency may be specified
- Tube length or maximum tube length may be specified

BAFFLES

- Baffles may be single segmental, double segmental, triple segmental, full circle, no-tubes-in-window, or rod baffles
- User may specify or have the program optimize the baffle spacing, cut, and direction
- Impingement baffles are accommodated

CLEARANCES

Users may select one of the available clearance standards or define their own

MISCELLANEOUS

- Safety factors may be specified
- Entrainment ratios
- Kettle diameter
- Shellside or tubeside coefficient may be fixed
- Tube axial stress
- Vibration analysis
- Zone by zone analysis of heat transfer and pressure drop calculations

TECHNIQUES

Sensible Heat

For sensible heat, the program uses a full stream analysis on the shell side, and several optional methods on the tube side. However, default methods are always selected for the user.

Condensers

CC-THERM designs or rates horizontal, vertical, or reflux condensers. Again, several methods are available, with defaults preselected. Non-condensables, even in large amounts, can be calculated.

Reboilers and Evaporators

A variety of methods are available for calculation of reboilers and evaporators to account for diverse fluids and diverse applications.

Stream Analysis

CC-THERM performs a full stream analysis on the shellside. This baffle by baffle calculation explicitly accounts for the effects of clearances and shellside configurations on heat transfer and pressure drop. At the user's option, this analysis can be extended to include the presence of finned tubes, turbulators, sealing strips, impingement plates, sparger pipes, and many other construction variables.

Detailed Zone Analysis for Two Phase Flow

CC-THERM rigorously accounts for changes across the exchanger by dividing it into zones. At each zone, CC-THERM automatically calculates the conditions and properties, and identifies the flow regime and applicable heat transfer mechanism. It then applies the appropriate formula to calculate the pressure drop and film coefficients.

Chemstations™

www.chemstations.net