

# EBSILON® Professional System Engineering and Design

## Intuitive operation

- User-friendly and customizable, Windows-based graphical user interface
- Mapping of facility topology with plant components and material flows
- Customizable component display and structure
- User-defined keyboard shortcuts
- Operating languages include German, English, French, Spanish, Turkish and Chinese

## Reliable results by safe convergence

- Highly efficient computation module
- Fast solution algorithm, simulates 1,100 components and 1,400 pipes in 2.5 s
- Convergence diagrams and customizable iteration behavior

## Presentation of results and analysis

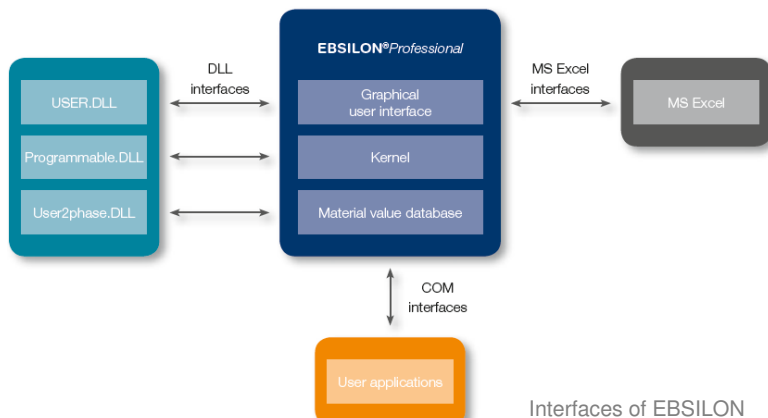
- Value crosses and interactive fields in modeling workspace
- Standard and user defined reports in MS Excel
- Model output as HTML for presentation of results in web browser
- State diagrams: Q,s; h,s; T,s; log(p) h; H,xi etc.
- Convergence and control diagrams
- Templates for user-defined diagrams in MS Excel

## Extensive component library

- Components for all kinds of thermal power plant processes:  
CCPP, coal-fired, CHP, CSP, ORC, geothermal, desalination and nuclear plants
- Adjustment of part-load performance with parameters and performance characteristics
- User-defined components and macros
- Extensive and customizable gas turbine library comprising gas turbine models based on manufacturer data
- Continuous maintenance and expansion in cooperation with partners like the German Aerospace Center (DLR), VTU Austria and TU Darmstadt

## Comprehensive material libraries

- Water and steam (IAPWS-IF97)
- REFPROP library (NIST):  
90 fluids from acetone to xenon
- Moist air
- Salt water
- Thermal liquids for CSP applications
- ORC liquids and liquid mixtures
- Two-phase fluids
- Binary blends:  
-Ammonia/water  
-Lithium bromide/water
- Fuels:  
- Coal (database of calorific values included)  
- Oil  
- Natural gas  
- user-defined e.g. wood



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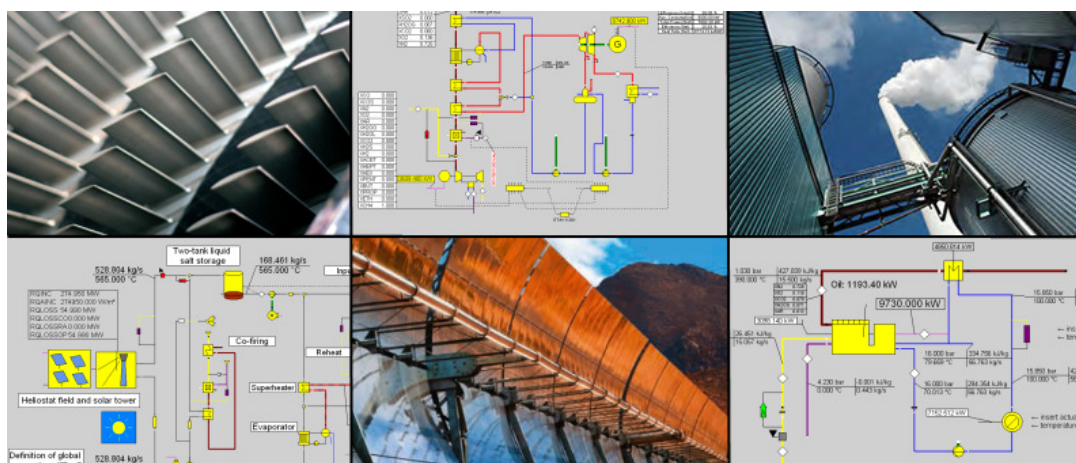
## Software architecture and interfaces

- Integration into existing software infrastructure and user-specific programs
- Script language for automation of calculations and user-defined components
- Easy data exchange with MS Excel
- Error analysis tools with root cause identification
- Online help with detailed explanations of the physical function of all structural components
- Sample circuits for all components and various power plant types

## Add-on modules

Add-on modules expand the functionality of EBSILON<sup>®</sup> Professional and support your engineering work with the knowledge of our experts.

- OEM-GTLib - Gas turbine library based on manufacturer data
- EbsSolar - Components for detailed mapping of CSP collector technologies
- EbsBoiler - Components for detailed mapping of the boiler geometry
- EbsOptimize - Integrated optimizer on the basis of a genetic algorithm
- EbsValidate - Data validation according to VDI 2048
- EbsHTML - Output of EBSILON<sup>®</sup> Professional circuits in HTML format
- EbsScript - PASCAL-based script language for EBSILON<sup>®</sup> Professional



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