

What comes after KULI?

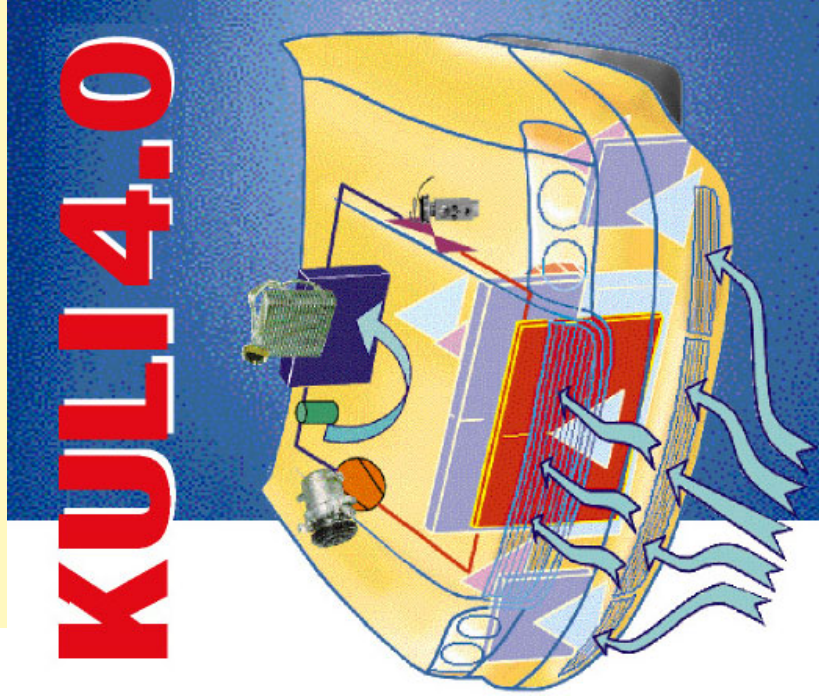
Chaos?

NO !!!

KULI

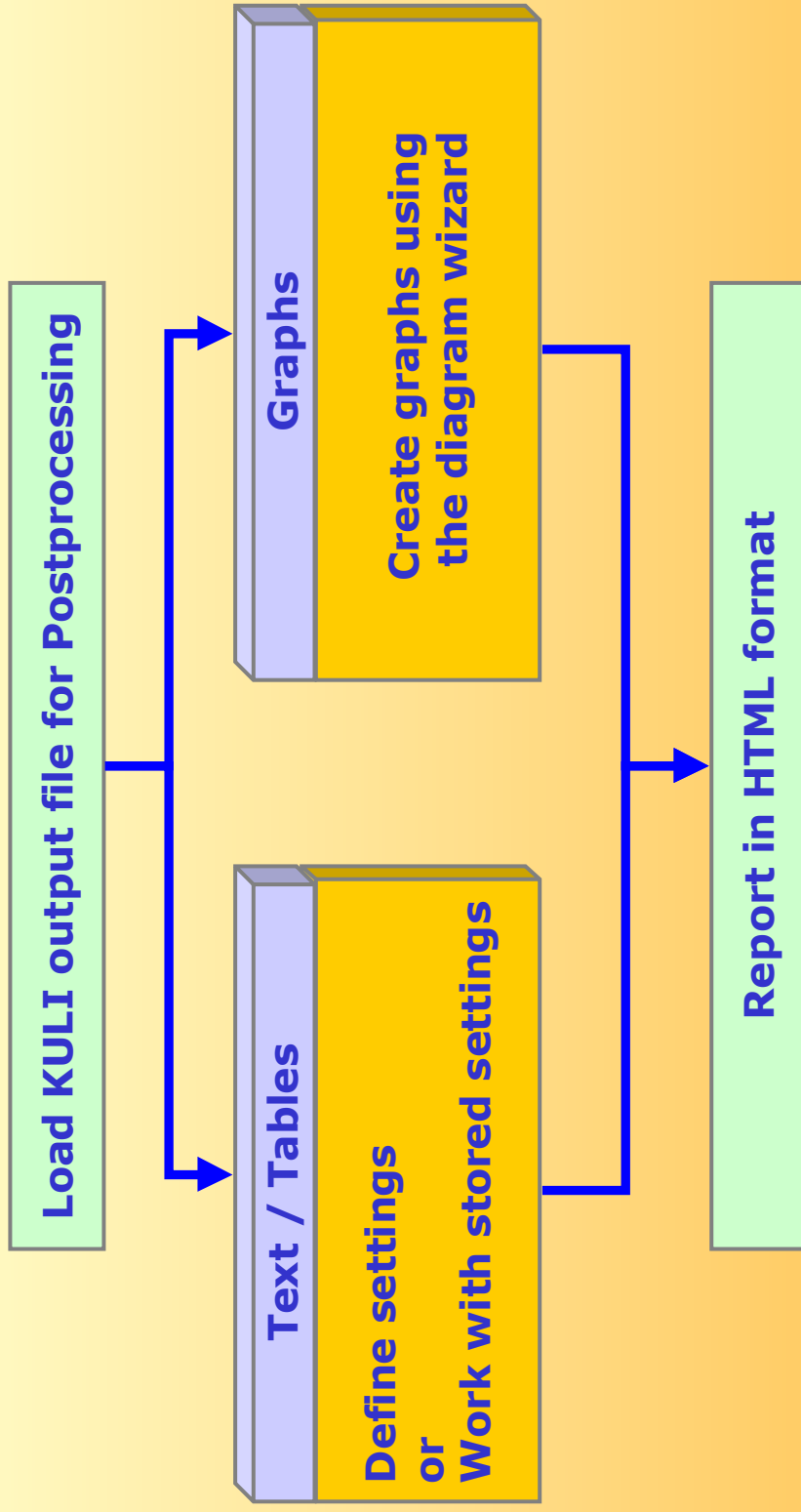
POSTPROCESSING

Main features of KULI Postprocessing



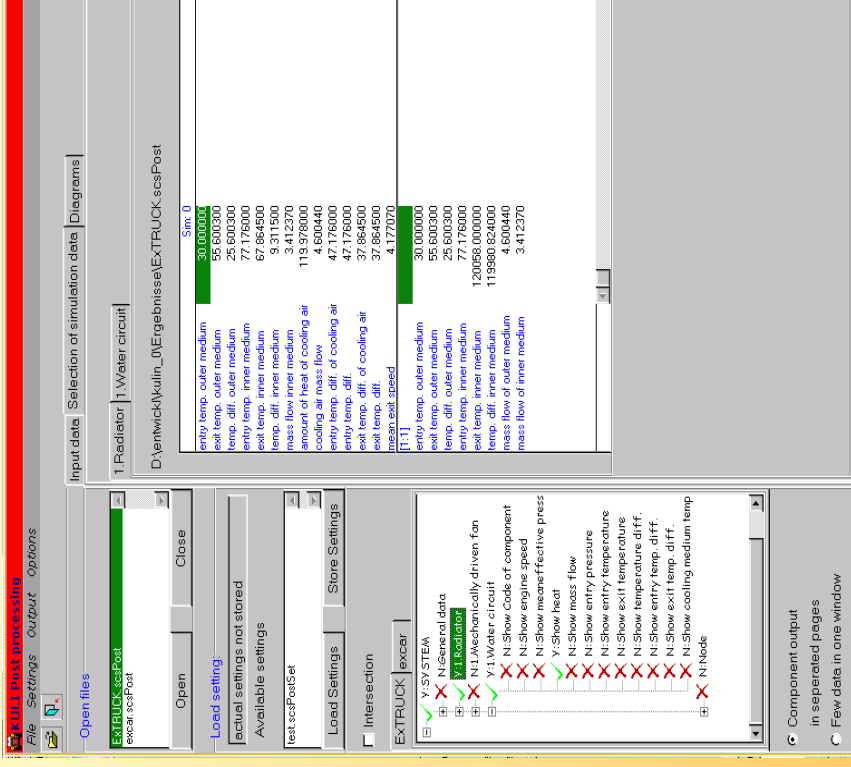
- Output of simulation results in tables
- Filtering output data
- Quick comparison of variants
- Display operation points of radiators and fans as 2D or 3D diagrams
- Display results as 2D line and bar charts
- 3D graphs of heat and velocity distribution of components
- Report in HTML format

Postprocessing procedure



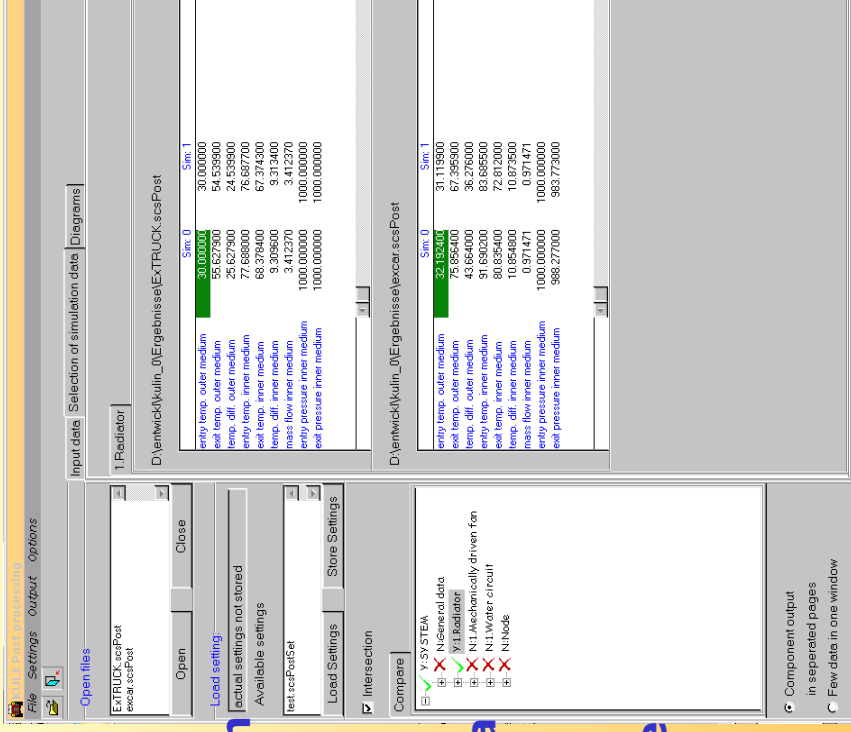
Defining the amount of output

- Available data or components are shown in a tree
- Data organized in a hierarchy
- Each open file can be listed on a separate page
- OR
- Intersection data of all open files can be analyzed easily
- Data output in separate tables
- OR
- Data summarized in one table
- Settings can be stored and reused later



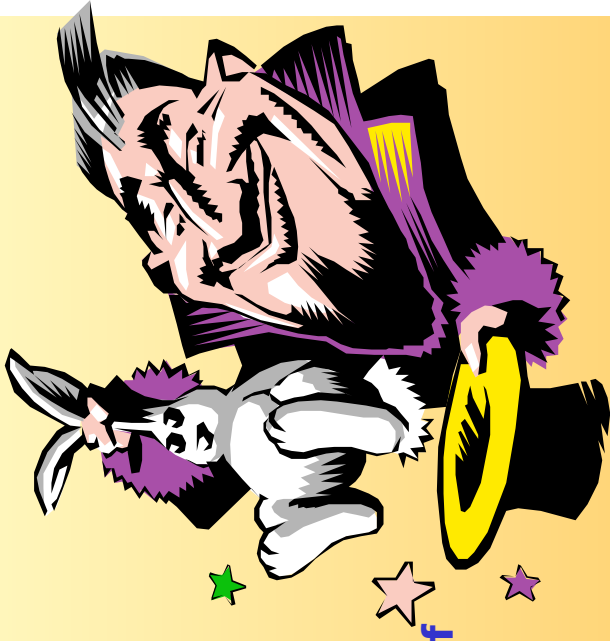
Work with multiple open files

- Allows an quick overview over different variants and simulation parameters
- Data of the single files are shown in tables one top of the other
- Tables can be synchronized when scrolling vertically and horizontally
- Option: Show only intersection data is designed to compare similar systems
- Simulation points are arranged side by side
- Files can be added and removed from the list of open files



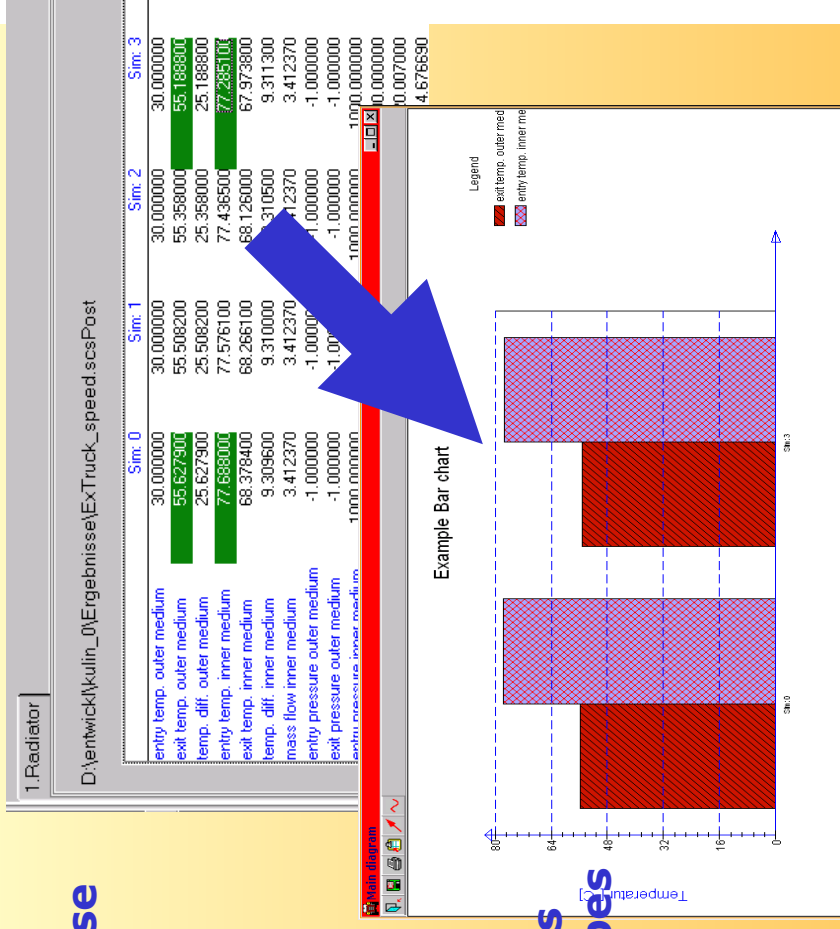
The diagram wizard: Create graphs to your request

- 2D line charts: Watch parameter values over many simulation
- 2D bar charts: Compare two or more variants
- Operation point of fans
- Operation point of radiators in 2D / 3D view
- Temperature and velocity distribution of radiators using color maps
- Display values at a user specified path of the cooling air as 2D line chart
- Write user specified values into the 3D view of the cooling system



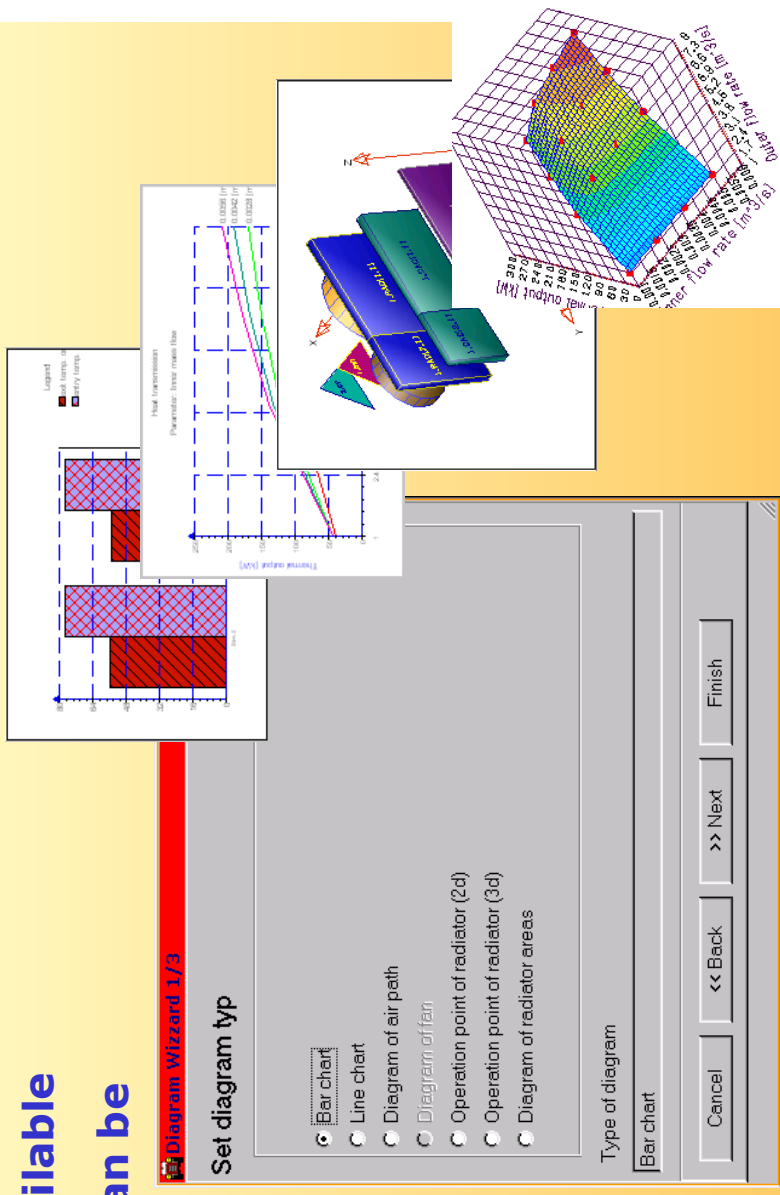
Selection of data to be displayed

- Data can be selected via mouse clicks
- Procedure similar to Excel®
- Individual design of graphs
- No limitation of diagram types because of no pre-defined types
- Get results quickly



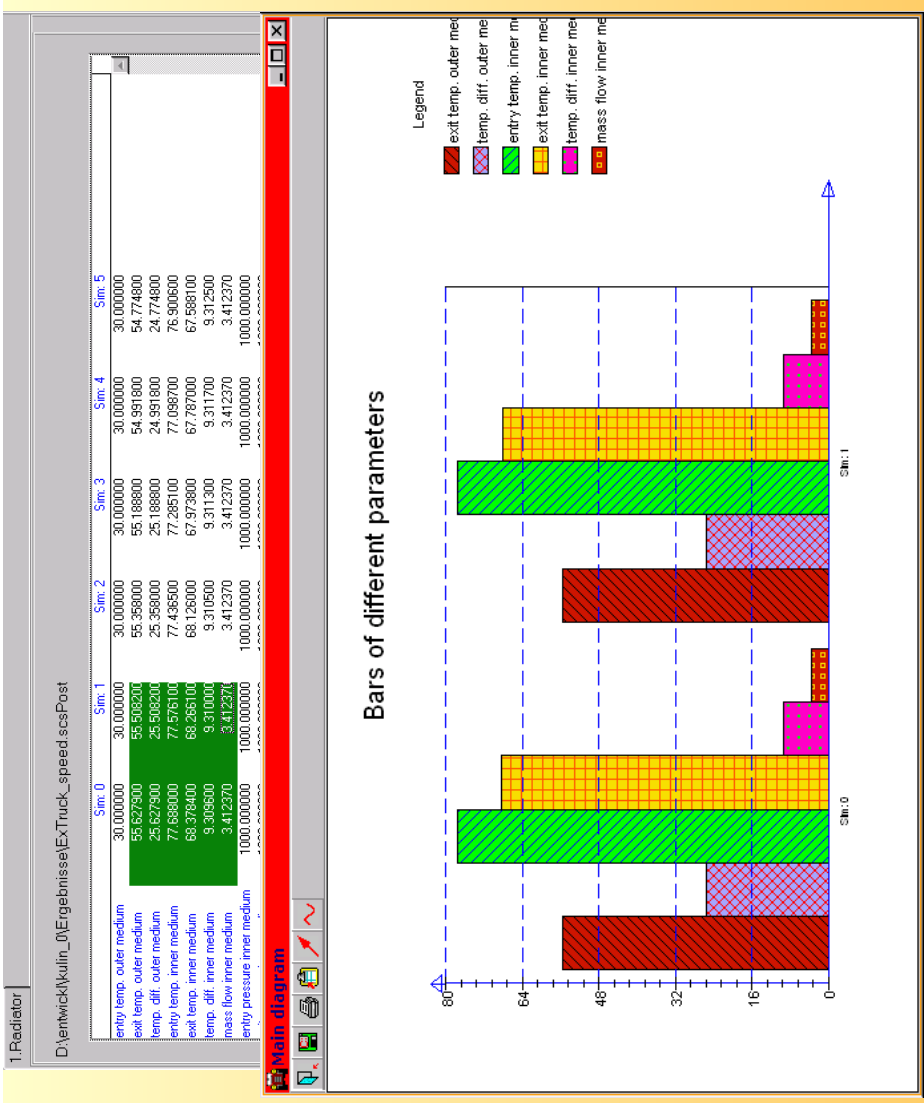
Choosing the diagram type

- Various types available
- The best option can be chosen



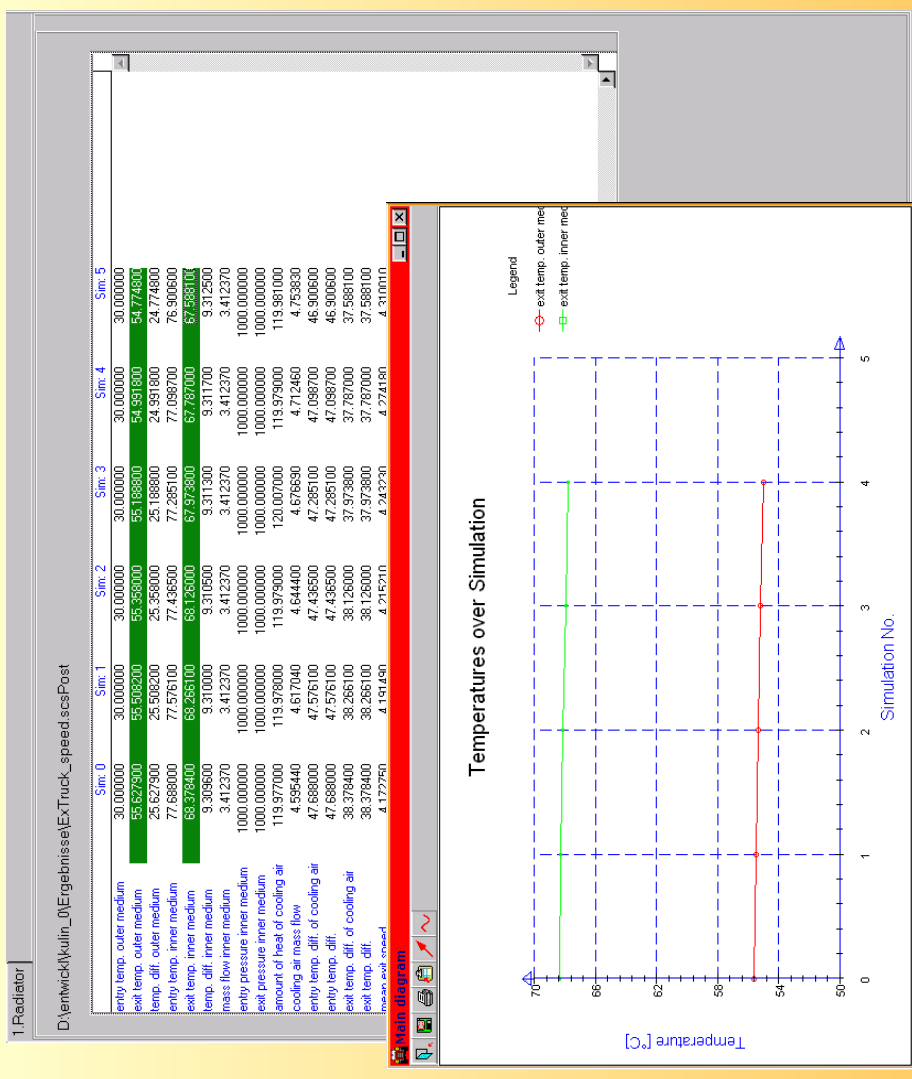
Bar chart

- Compare few characteristic values
- Titles of diagram and axis can be set
- Scaleable axis

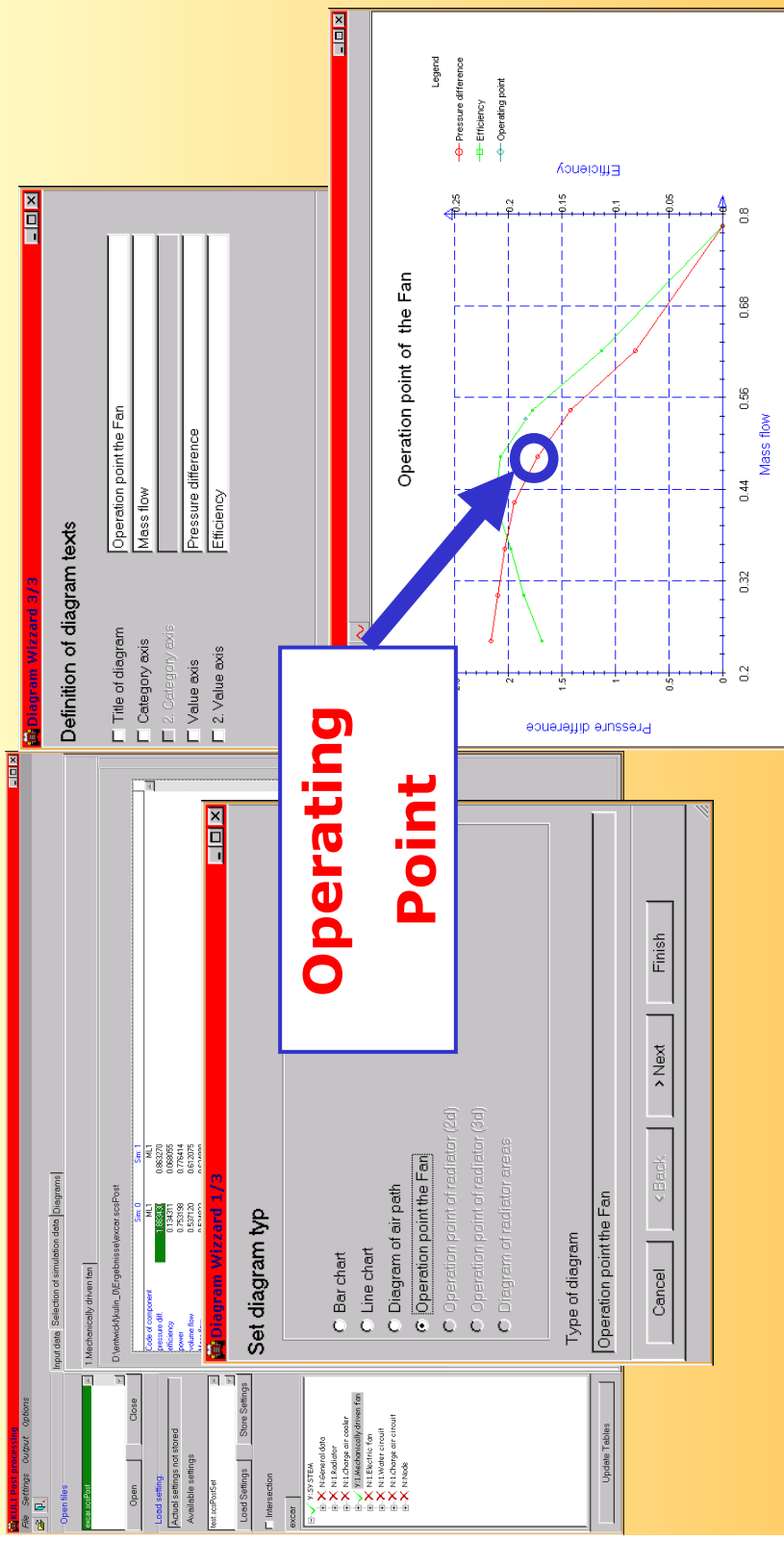


Line chart

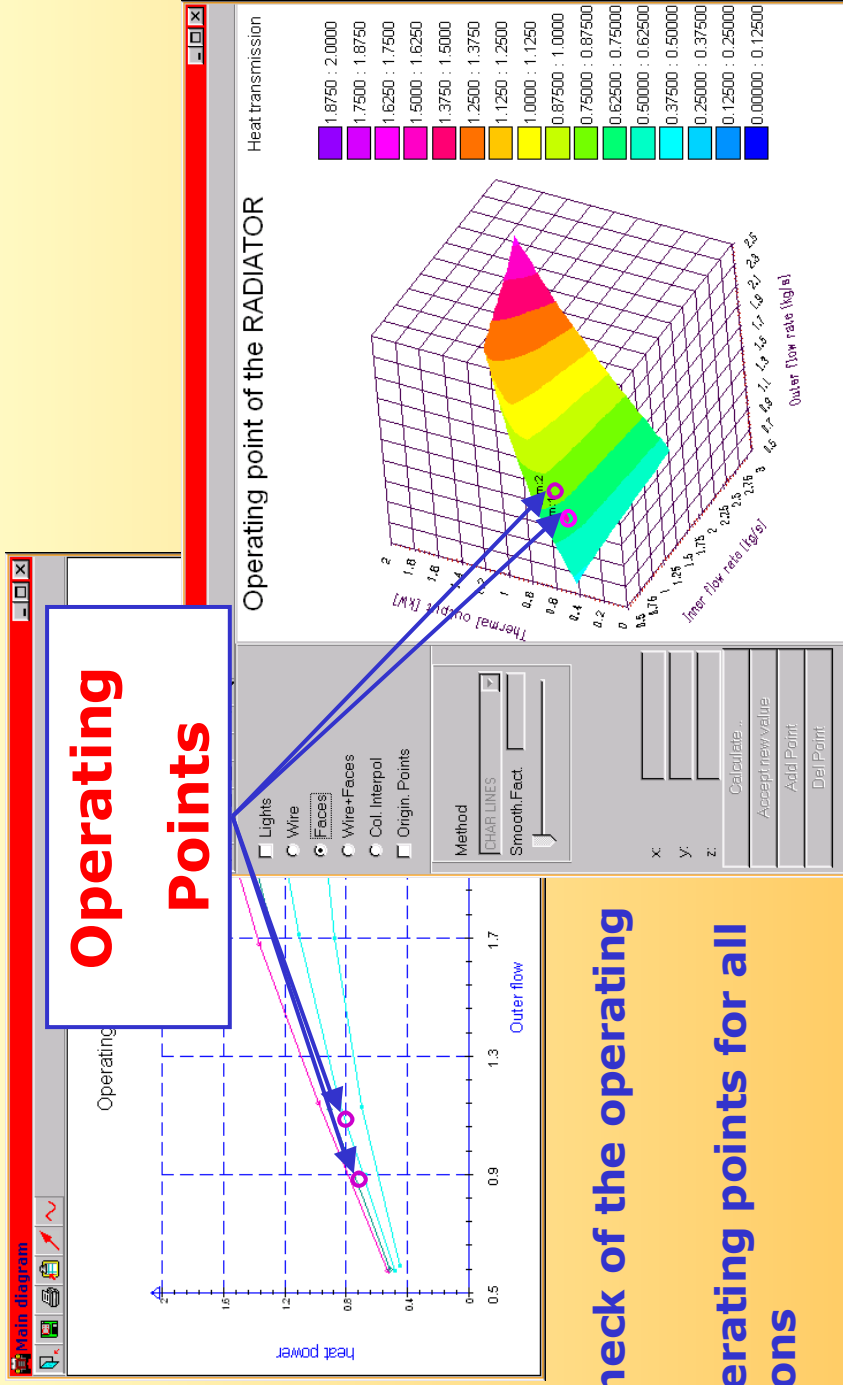
- Any parameter can be selected
- Display progress of parameters over simulation steps
- Optimum method for many simulations



Operating point of the fan



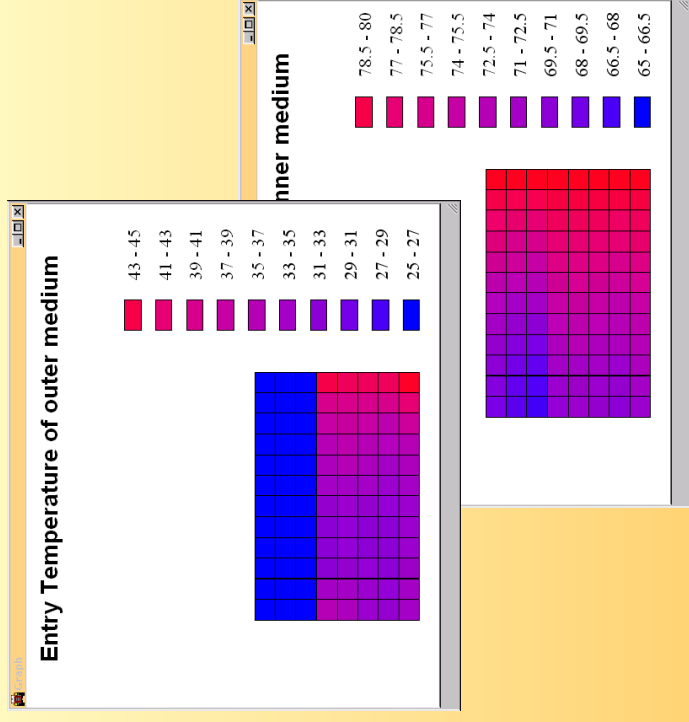
Operation point of the radiator



- Visual check of the operating point
- View operating points for all simulations

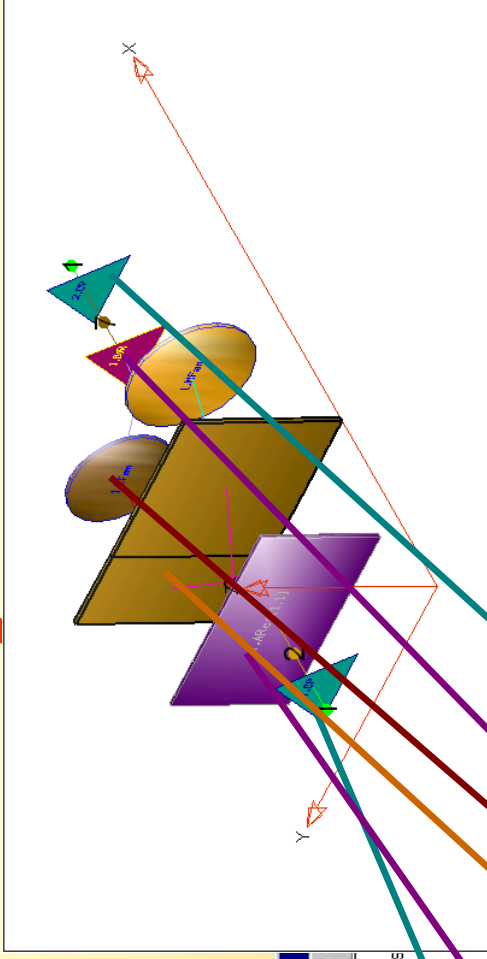
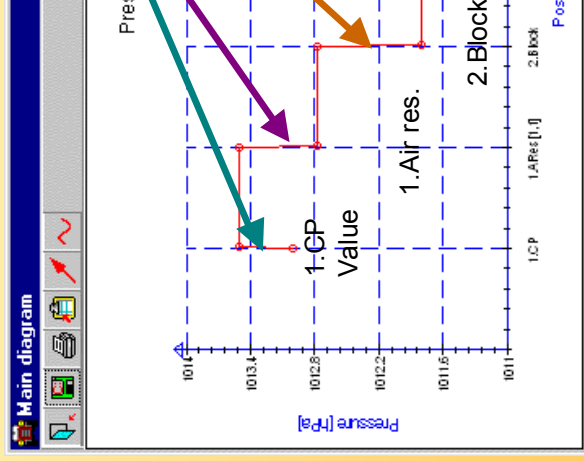
Heat distribution of a radiator

- View properties of each division (manually defined AND program defined) of the radiator
- Various parameters can be show
 - ✓ Temperatures (Entry and Exit)
 - ✓ Mass flows
 - ✓ Temperature differences
- Quick overview over critical sections



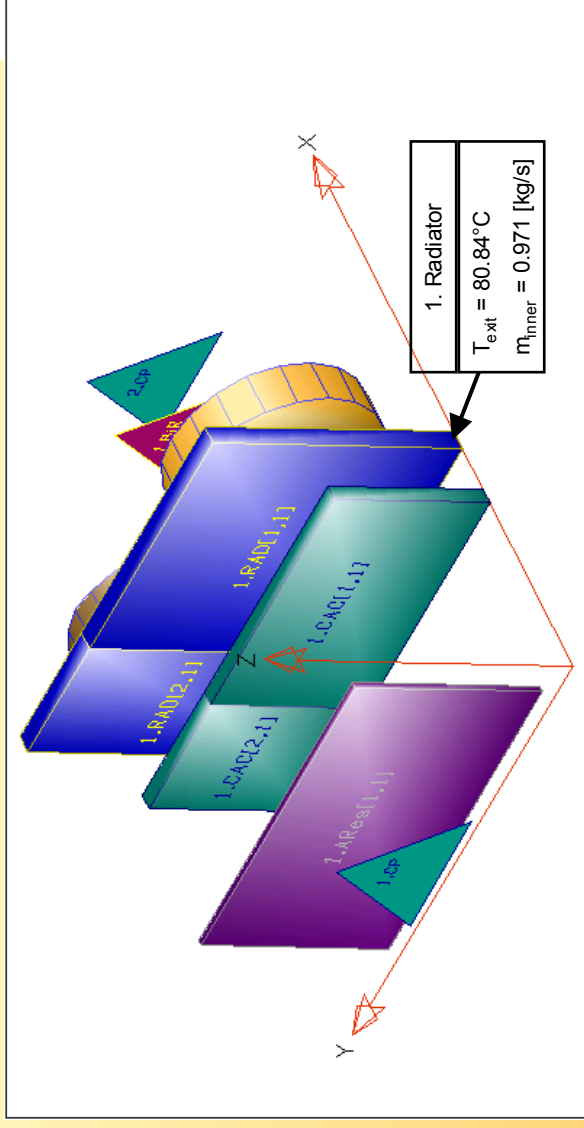
Values at the path of the cooling air

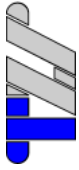
- Display a user defined path of the cooling air
- Define values to be shown



Data in 3d view

- The best and clearest view of the cooling system in 3D can be stored
- Text to be written into this view can be defined
- User defined layout
- Dragable text boxes
- Clear reports of high quality





Output in HTML

- KULI generates reports in standard HTML format
- An index is generated to simplify navigation
- Reports can be viewed without KULI using any Internet Browser or WinWord®

```
<html>
<head>
<title> ECS</title>
<meta name="generator" content="SCS Postprocessor">
<meta http-equiv="Content-Style-Type" content="text/css">
<link rel="stylesheet media="screen" type="text/css" href="..\Postprocessor.css">
<link rel="stylesheet media="print" type="text/css" href="..\Postprocessor_Print.css">
</head>

<a href="#1.Radiator.ExampleTRUCK">1.Radiator.ExampleTRUCK</a><br>
<a href="#1.Radiator.ExampleTRUCK">1.Radiator.ExampleTRUCK</a><br>
<a href="#1.Mechanically driven fan.ExampleTRUCK">1.Mechanically driven fan.ExampleTRUCK</a><br>
<a href="#1.Water circuit.Truck.ExampleTRUCK">1.Water circuit.Truck.ExampleTRUCK</a><br>
<a href="#Nodes">Nodes</a><br>
<a href="#1.Radiator.ExampleTRUCK">1.Radiator.ExampleTRUCK</a><br>
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</caption>
</table>
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1.Radiator.ExampleTRUCK
1.Radiator.Parts.ExampleTRUCK
1.Mechanically driven fan.ExampleTRUCK
1.Water circuit.Truck.Example
Node.NODES

1.Radiator: ExampleTRUCK

	Sim. 0	Sim. 1	Sim. 2	Sim. 3	Sim. 4	Sim. 5
Entry temp. outer medium	30.000000	30.000000	30.000000	30.000000	30.000000	30.000000
Exit temp. outer medium	55.627900	55.508200	55.358000	55.188800	54.991800	54.774800
Temp. diff. outer medium	25.627900	25.508200	25.358000	25.188800	24.991800	24.774800
Entry temp. inner medium	77.688000	77.576100	77.436500	77.285100	77.098700	76.900600
Exit temp. inner medium	68.378400	68.266100	68.126000	67.973800	67.787000	67.588100
Temp. diff. inner medium	9.309600	9.310000	9.310500	9.311300	9.312500	9.312500
Mass flow inner medium	3.412370	3.412370	3.412370	3.412370	3.412370	3.412370

- Graphs are stored as JPEG
- Data (text, tables and graphics) are available for further processing e.g. for Excel®

Postprocessing session management

- Store a Postprocessing session including
 - ✓ List of open files
 - ✓ Applied Filter settings
 - ✓ Filters can be stored also separate
 - ✓ Other settings like use intersecting data
 - ✓ All 2D and 3D diagrams
- Generate templates for reports
- Uniform layout
- Quick and efficient report generation