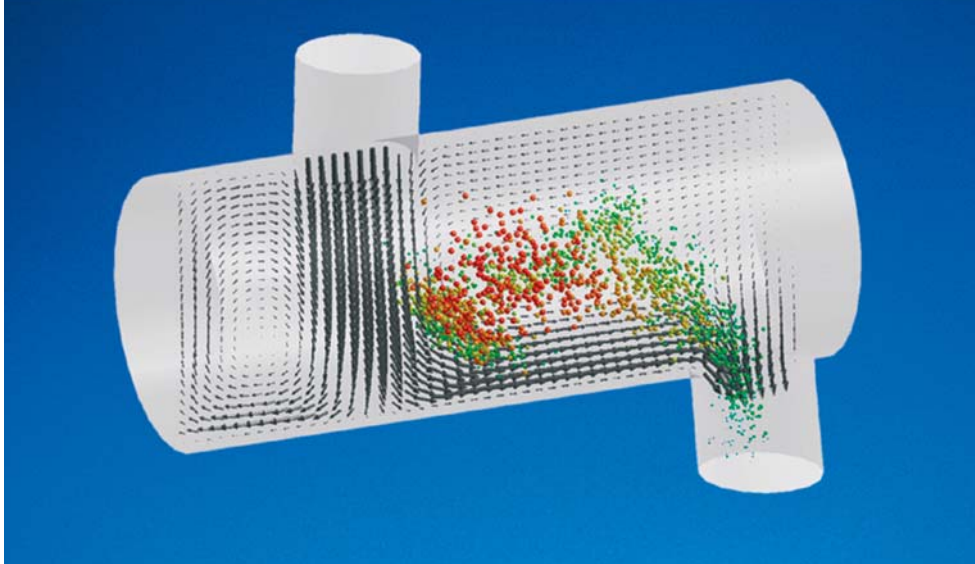




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## Computational Fluid Dynamics (CFD)

A Product Information Sheet by the Plant Engineering Business Unit

### Computational Stress Analyses

Computational fluid dynamics (CFD) permit a much better insight into sophisticated flow patterns than experimental techniques. The same quality of results cannot be obtained through experiments without any additional efforts. In CFD applications reality is not described exactly, but approximately, using simulation tools. The user has to select appropriate physical models and suitable numerical parameters, strongly depending on the problem to be solved.

The results are affected by the choice of these parameters and hence CFD-Tools cannot be considered as a „black box“. In order to gain benefit from CFD a highly experienced user is therefore indispensable. At TÜV SÜD we rely on modern and internationally recognised simulation tools as well as on a highly qualified and experienced staff.

### Our Services

As an independent consultancy and service provider TÜV SÜD offers to perform or to review stress analyses, in particular:

- Laminar and turbulent flow
- Incompressible and compressible flow
- Static and transient simulation

- Simulation of concurrent fixed and moving components
- Multi-phase flow, free surfaces
- Heat and mass transfer
- Combustion, radiation, chemical reactions
- Evaporation, condensation
- Subsonic and supersonic flow
- Free convection and dispersion of hazardous substances

### Your Benefits

The systematic involvement of all our experts within TÜV SÜD and the combined know-how of our CFD expert teams guarantee excellent and cost-efficient results, even in the case of challenging technical applications.

- ▶ Determination of critical flow patterns
- ▶ Simulation of environmental impacts in a virtual surrounding
- ▶ Knowledge of temperature, velocity and heat flow distribution
- ▶ Optimisation
- ▶ Straightforward approach for design verification
- ▶ Saving of costs through virtual design and redesign steps
- ▶ Determination of failure root causes
- ▶ Third-party independency

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