Differences between TCFD and OpenFOAM

OpenFOAM is a general set of tools that is free and can be used for running CFD simulations.

TCFD includes 30+ man-years of focused team development on top of OpenFOAM. TCFD is a complex workflow for real engineering work. 100% in Graphical Interface. Focused. Robust. Tested. Validated. Best Practiced. Unlimited technical support. Documentation.

GUI

- GUI in ParaView
- 100% workflow in GUI
- Case settings
- Simulation run
- Live results monitoring
- Post-Processing
- Reporting
- User & Advanced mode
- Component Management
- Speedline Management
- BC Management

CFD Processor

- Single configuration file .tcfd
- Full Automation
- Simulation type - focus
- Dimension Units
- MSH Reader
- CGNS Reader and Writer
- Check set-up & Mesh
- Bind to Core
- Convergence Check
- Reference Frames
- Batch Mode
- Python User Defined Functions

Operation system - native compilation

- *Linux* - native compilation in box - independent on the system version
- *Windows* - native compilation in box - independent on the system version

Solvers

- *blueSolver* - incompressible - robust convergence for limiting quantities
- *redSolver* - compressible - robust convergence for limiting quantities
- *greenSolver* - cavitation - robust convergence for limiting quantities

Reporting

- Every simulation has its HTML report
- External Data
- Compare Report

Boundary conditions

- Mixing Plane
- Periodic AMI
- Directed Flow Rate
- Directed Total Pressure
- Directed Total Temperature
- Hydrostatic Total Pressure
- Outlet Vent
- Fixed Mean Value

Post-Processing

- Blade to Blade View
- Meridional Average
- Efficiency Object
- Interfaces Object
- Calc for FSI/FEA

Real Tutorials

Tutorials are based on real industrial projects and existing machines that have been tested. Including best practice settings.

- Axial Pump
- Centrifugal Pump
- Axial Fan
- Centrifugal Fan
- Axial Compressor
- Centrifugal Compressor
- Axial Turbine Stage
- Radial Turbine
- Francis Turbine
- Kaplan Turbine
- Ship Hull Propeller
- Wind Turbine
- Valve
- Spitfire
- Hydraulic Valve
- Double Rotor Fan
- Ahmed Body
- DrivAer Car Model
- Building Wind Load

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