## Thermodynamic Cycle Analysis
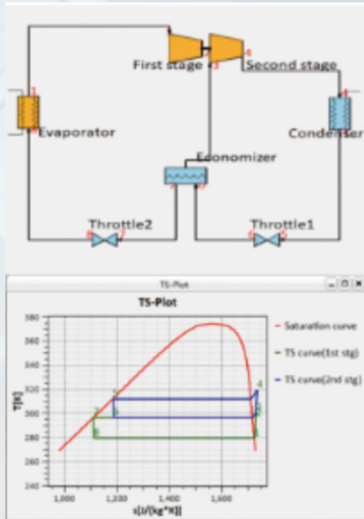
- TurboTides Cycle Analysis supports the design and analysis of following thermodynamic cycles and configurations:
  - Rankine cycle - Organic Rankine Cycle (ORC)
  - Gas turbine cycle
  - Super-critical CO2 cycle
  - Refrigeration cycle
  - Turbocharger matching
  - Multistage compressor sizing and analysis, including Integrated Gear Compressor (IGC).
- Supports different options for compressor and turbine models, including 1D meanline models and stored performance maps.
- Easy setup for cycle optimization.
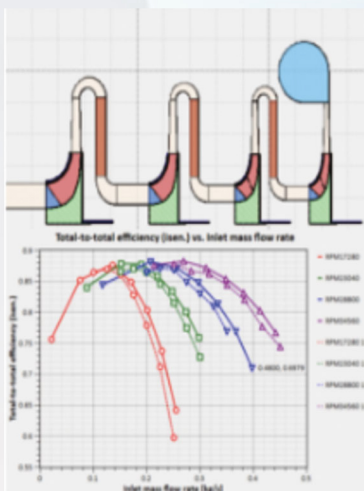


## 1D Design and Analysis

1D meanline module supports preliminary design, analysis and data reduction for radial, mixed-flow and axial compressors, turbines, pumps and fans.

- 1D model calibrated through data reduction can match the test data point-by-point across the full performance map.
- Real fluid model based on REFPROP 10 and fast table.
- User Define Function (UDF) allows user to change the default model and behavior of the program.
- Easy setup for 1D optimization.
- Supports scaling, trimming, flow-cut and adjustable geometry modeling.
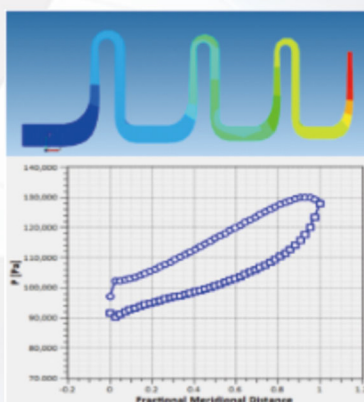


## 2D Analysis

2D flow analysis includes a hub-to-shroud throughflow (S2 surface) solver and a blade-to-blade (S1 surface) solver.

- Streamline curvature method.
- Automatic mesh generation from 3D geometry.
- Automatically quantify the blade geometry (blade angle, thickness, lean).
- Considers loss, deviation and blockage and spanwise mixing.
- Easy setup for flow passage and blade profile optimization.