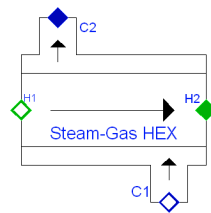
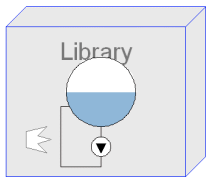


ThermoFluid



The ThermoFluid library is designed as a base library for all types of systems that can be described by flow of compressible fluids, convective or radiative heat transfer and possibly chemical reactions. All models are designed to work over the large operating range, e.g. reversing flow directions and start-up transients. A recent addition is an interface to the chemical property package MultiFlash™ from Infochem Ltd. Please contact Dynasim AB for details.

The library has been used in a number of industrial projects in diverse applications: Modeling of steam distribution systems, fuel cells, food processing, micro turbine systems and refrigeration systems.

ThermoFluid library models use Modelica's advanced language features to give engineers the freedom to build custom models without having to re-implement the basic laws of thermodynamics, hydraulics and reaction kinetics.

Some ready-to-use models for specific applications like steam power plants are included.

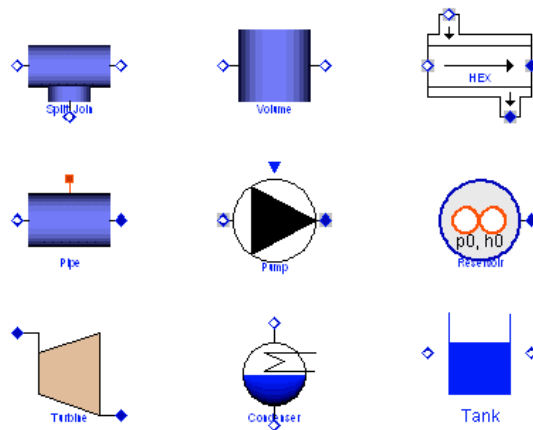
For more information, a tutorial and for downloading a beta version of ThermoFluid, see

<http://www.control.lth.se/~hubertus/ThermoFluid>.

The ThermoFluid library is a free Modelica library. It contains base models and component libraries for:

- Highly accurate medium property calculations for steam (IAPWS/IF97), some refrigerants (R134a, CO₂) and all fluids available in the MultiFlash property database via an add-on.
- Ideal gas based medium properties for 50 important gases.
- Lumped and distributed control volume models for pipes, tanks, etc.
- Flow joins and splitters.
- Heat storage in metal structures, heat transfer laws
- Either dynamic or static handling of momentum flow of gases and liquids.

Example: Water and steam components



Example models

Among the ready-to-use example models are:

- Models of pumps, compressors and turbines, valve and orifice models.
- Heat exchangers
- Attenuator control in a power plant
- Chemical reaction kinetics

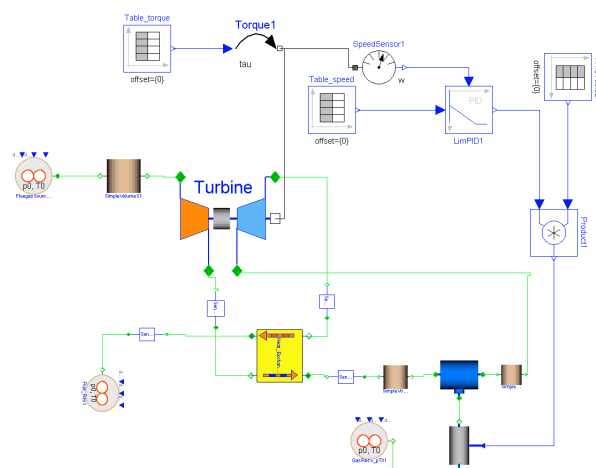


Figure 1: Micro turbine system model

Authors

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