

SYSTEMS COOLING LIBRARY

Develop cooling systems and dimension components, dedicated to batteries, electric drives and electronic thermal management



MODELING AND SIMULATION OF COOLING CIRCUITS

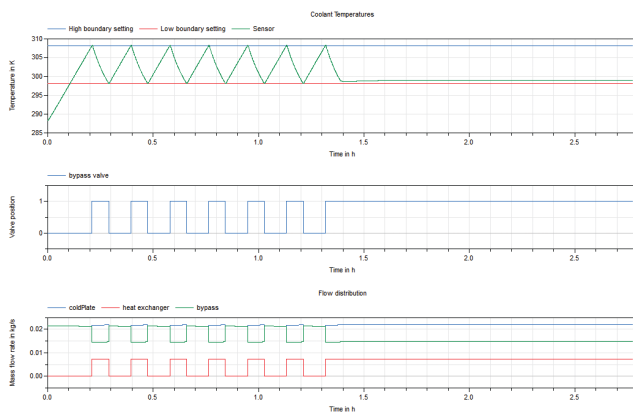
The Modelica based Systems Cooling Library supports the development of the thermal management system, especially for batteries cells, electrical drives and powertrain. The ease of component parameterization as well as the use of standard connectors helps to build

APPLICATION

The library has been designed to ideally complete the Battery, the Electrified Powertrain and the Brushless DC libraries in order to optimize the thermal management of the complete electrical system. It includes key components and single phase media models including incompressible liquid fluids. These media offer significant simulation performances, to quickly assess the behavior of the complete system.

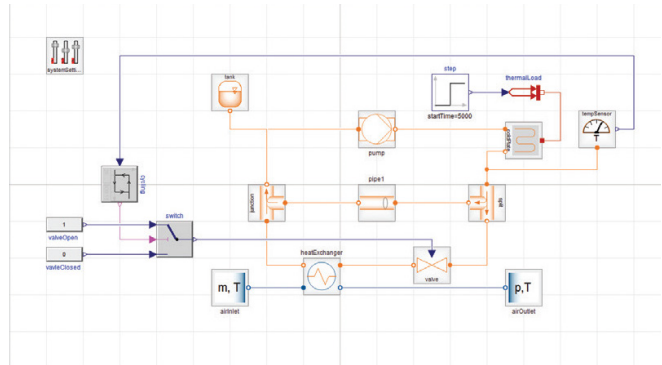
BENEFITS

- Significantly reduced costs through the efficient modeling and simulation of cooling circuits.
- Fosters innovative solutions for heat recovery and thermal management of the complete system.
- Quickly size cooling components to assess sub-systems lifetime and performances.
- Simplifies control development by considering thermal inertia of coolant circuit based on dynamic models.
- Easy to implement with compatible connectors and simple component parameterization.
- Easy to add user-defined fluid property table data to explore other solutions



HIGHLIGHTS

- Delivers a large set of components: boundary conditions, pumps, pipes, valves, reservoirs, airfan and heat exchangers, including coldplates.
- Covers single phase cooling media with thermal dynamics properties, designed for high simulation performances of use cases like drive cycles.
- Supports 2D temperature analysis of surfaces to calculate single cell temperatures in battery pack
- Optimized thermal design and simulation of battery powered and electrified systems.data with inbuilt functions



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