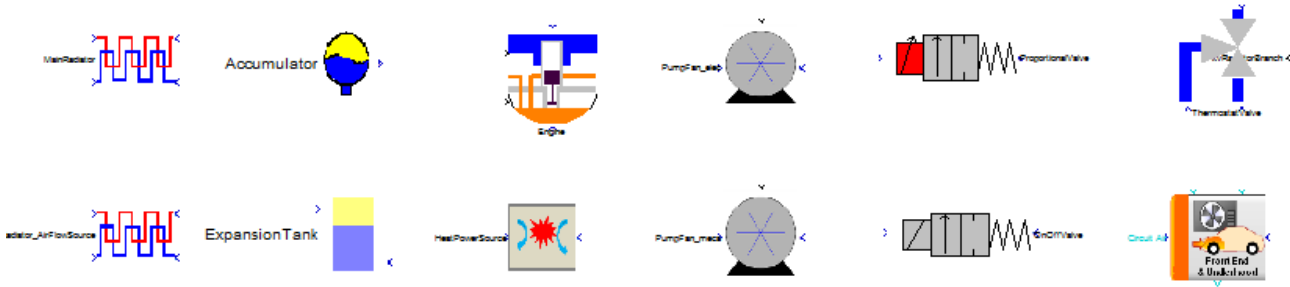


Cooling system

Engine cooling library

Cooling Components library

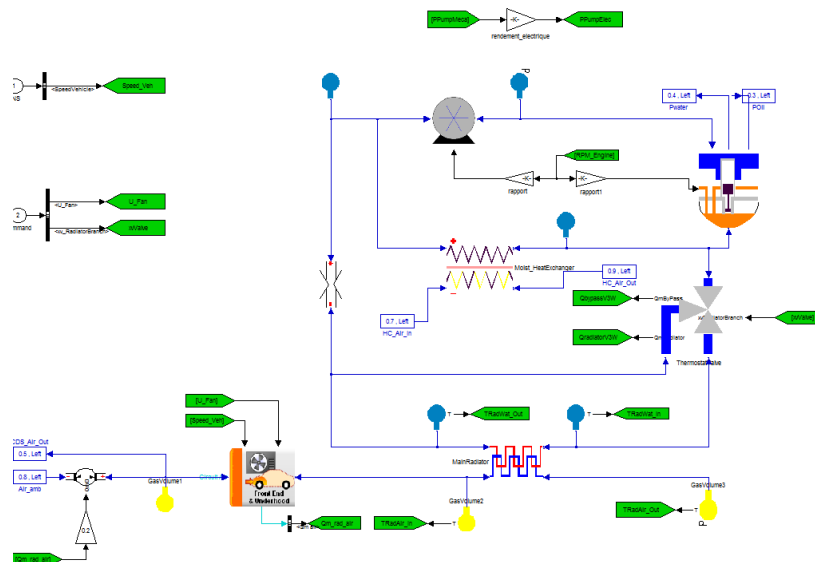


Based on its core competencies (modelling, control, system engineering) and by its knowledge of powertrain skills, Sherpa has developed libraries, models and tools which are the bases that support cooling circuit system model (control, actuators, sensors, physical system) from system specifications to validation.

This model allows representing all kind of cooling architectures (conventional or innovative) for different vehicles (conventional, hybrid, fuel cell). This module allows taking into account thermal aspects (water, oil, air) and their interactions/coupling with engine, air conditioning system.

Modelling meets the following requirements

- Physical architecture of the system
- Multivariable model based control
- Cover of the product life cycle (MIL, SIL, HIL...)
- Diversity: modular and polymorphic approach
- Automatic parameter and validation / qualification for models
- Taking into account of normal, degraded and failure life situations

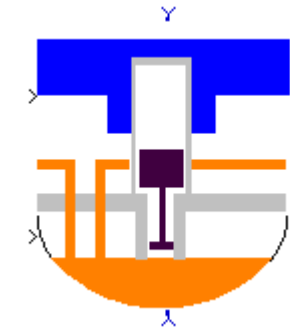


Contents

[Cooling System elements](#)

[Demos](#)

Main Cooling System elements



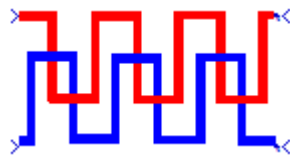
Engine Model

For the cooling system, the engine is considered like a heat source



Front End & Underhood

Represents the flow of air over the radiator



Radiator

Radiator (air/water or oil/water) heat exchanger based on NTU method for efficiency calculus.

[\[home\]](#)

Demos



Demos

Cooling System with its control.