

# ENGINE DYNAMICS LIBRARY

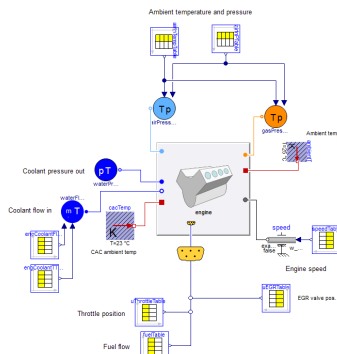
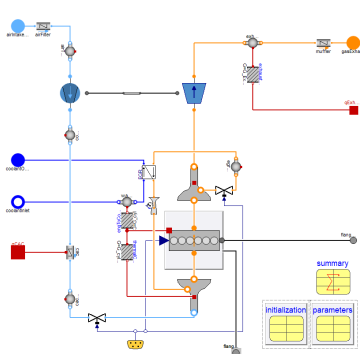


- Simulation of combustion engine systems for control design, virtual prototyping and ECU verification.

Engine Dynamics Library provides a framework for combustion engine system modeling, simulation and analysis, including the complete air gas exchange. The library is well suited to represent transient engine response and related engine control. Applications include control design with the purpose of transient engine out emissions reduction, transient exhaust condition modeling for optimum EATS operation

conditions, and engine response dynamics.

Engine Dynamics Library utilizes a mean value combustion model for torque, charge flow and exhaust condition modeling. Pressure and thermal dynamics of the complete air gas exchange process can be studied. Several turbo charger and EGR configurations can be modeled, including variable geometry turbine designs.



## KEY FEATURES

- Multi domain: Fluid mechanics, thermal dynamics, and mechanics captured in the same tool.
- Air gas exchange dynamics
- Well suited for control design
- Physical gas exchange modeling
- Mean value combustion model
- Flexible model options for torque, heat generation, emissions
- Capture dynamics and steady state performance of engine systems
- Wide range of engine and fluid component models
- Engine system templates and examples for rapid model realization
- Compatible with other Modelica libraries for full vehicle thermal management, drivability, fuel economy, etc.
- SIL simulation with engine control system

**Modelon**

TWINBUILDER IS A TRADEMARK OF ANSYS

Engine Dynamics Library is developed and maintained by Modelon.  
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Modelon is the premier provider of  
system modeling and simulation solutions  
based on Modelica and FMI standards.