

SYSTEMS FLUID POWER LIBRARY

Model and predict hydraulic systems behavior for transportation & mobility, aerospace and industrial equipment industries

DESIGN HYDRAULIC SYSTEMS AS A BUSINESS EXPERIENCE

The Modelica based Fluid Power Library enables the modeling and simulation of hydraulic systems using oil. It addresses the needs of development engineers for designing and finds the right solutions for their hydraulics systems in a multi-disciplinary engineering approach, including control and mechanical models in the same environment. Ready-to-use components enable rapid design hydraulic systems and predict their different behaviors, from early concept studies through to detailed control system design and implementation.

FLUID POWER LIBRARY

The library uses a novel Modelica connector that simplifies the model development task. The component models use ISO1219 compliant icons to make the circuit diagrams instantly recognizable to hydraulic design engineers.

The goal is to allow you to arbitrarily connect components to build up the hydraulic circuit you want to simulate without having to be concerned with the underlying equations and model structure.

APPLICATIONS

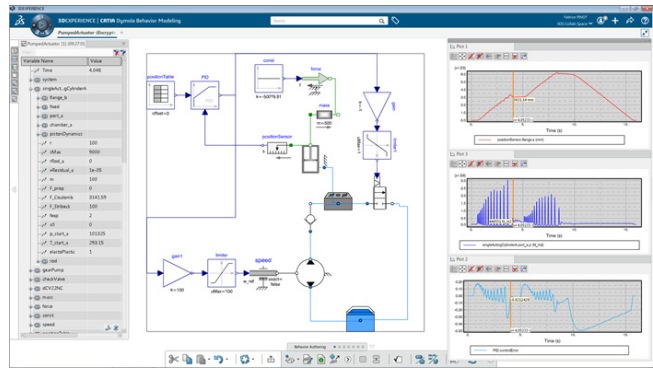
- Industrial Equipment: Transmissions, Construction and Mining machinery. Actuation systems for infrastructure or manufacturing
- Transportation and Mobility: Braking, Power-steering, Transmission actuation
- Aerospace & Defense: Braking, Landing-gear, Flap actuation systems, Aero engine controls

HIGHLIGHTS

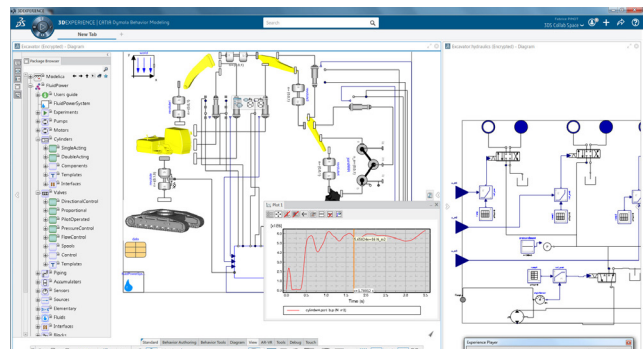
- Extensive library of ready to use standard components
- Components can be parameterized using the typical data found on manufacturers data sheets or using geometry data and flow coefficients to support component design
- Novel connector allowing arbitrary connection of components without having to worry port volumes as you need to in other Modelica libraries for simulating hydraulics
- The oil property models include compressibility, cavitation, viscosity and temperature dependent effects

BENEFITS

- Assess and validate control laws for hydraulics systems from conceptual design to validation phases
- Minimize costs through reduced need for physical prototype testing
- Accelerate development convergence by enabling concurrent engineering and common understanding of the system behavior
- Simplification in design processes by easily composing hydraulic systems with other disciplines



Control loop simulation of a speed controlled pump to set the variable position of an actuator - with results



Excavator Simulation

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