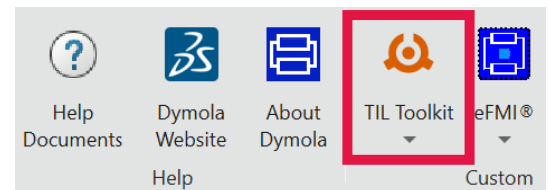




A Companion Toolset for the TIL Suite in Dymola

TIL Toolkit is a collection of tools designed to support engineers working with the **TIL Suite** model library in **Dymola**. It streamlines common modeling, analysis, and visualization workflows around thermal system simulation. All tools are readily accessible directly from a dedicated toolbar within Dymola.



Dymola Toolbar after the TIL Toolkit Library is loaded

Function Overview

- Beginner-Friendly Model Creation
 - Data-Based Compressor/Pump Modeling
 - PEM Polarization Curve & Stack Design Creation
- Model Initialization from Final State
- TIL Media Property Visualization & Calculation
- DaVE-Integration and Result Management
- Compare Time Series
- Utilities
 - FMU License Embedding
 - Multi-Model Simulation Loop
 - Model Diagram Export (PNG/SVG)

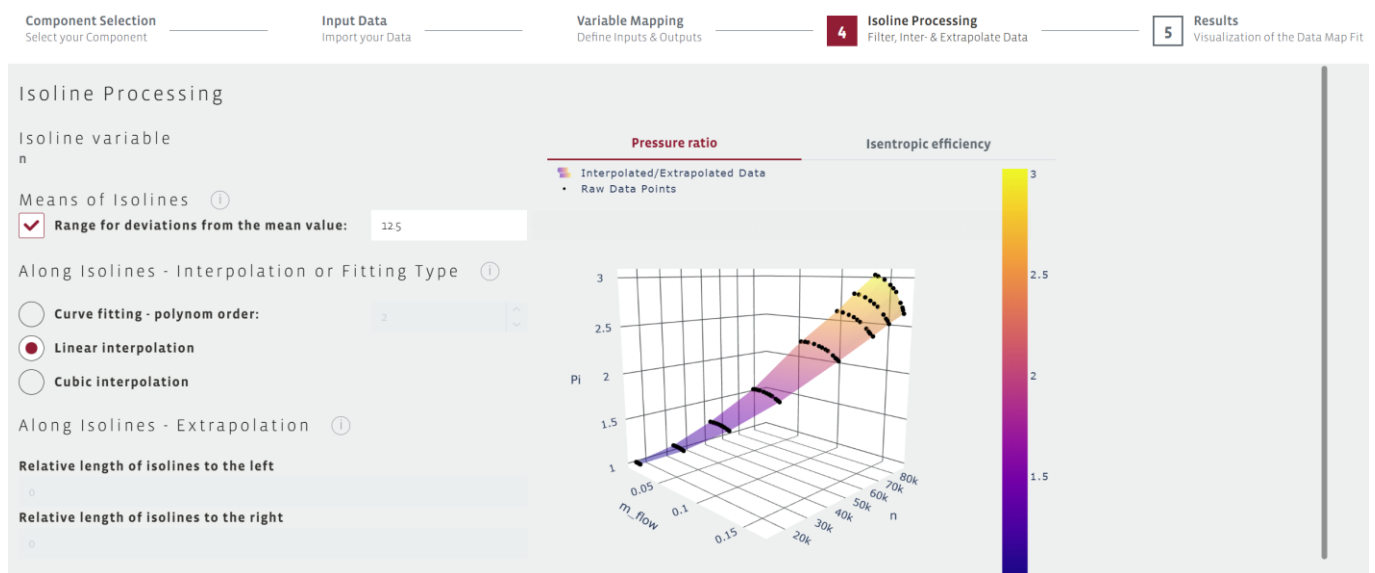
Contact Person

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Beginner-Friendly Model Creation via Wizards

- Generate characteristic-map-based models of **compressors** and **pumps**
- Design of **polarization curves** for **polymer electrolyte fuel cells**
- Design of polymer electrolyte fuel cells as a **stack system**



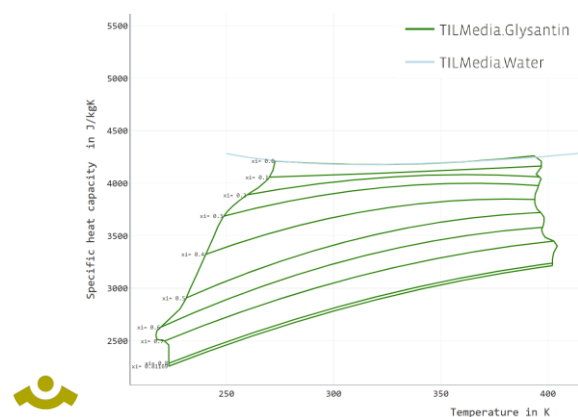
Wizard to generate a data-based compressor model in TIL Suite

Model Initialization From a Previous Simulation's Final State

Auto-create a new model that sets the **final states** of a previous simulation result as a **modifier** on an existing model. This speeds up simulation time – useful, for example, for downstream controller tuning using step-response analysis. The tool also detects potential time-event issues (e.g. activationTime/ startTime parameters) that could cause the new model to behave differently from the extracted final state and offers options to ignore start values or activation time values where needed.

Easy Access to TILMedia Data

Get information of available substances in TILMedia and calculate **custom probes**. Plot custom **thermodynamic variables** of liquids e.g., specific heat capacity over temperature.



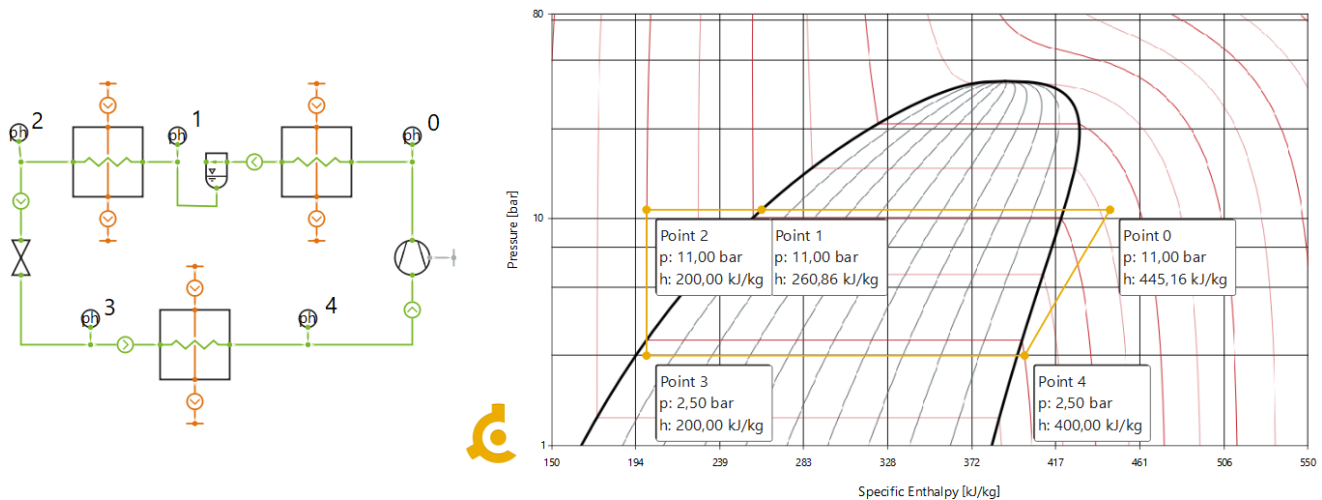
Liquid Properties Plotter: Specific heat capacity over temperature of glysantin and water



Seamless Dymola-DaVE Coupling

Connect Dymola to DaVE for fast, **ready-to-use visualization** of thermal system simulation results.

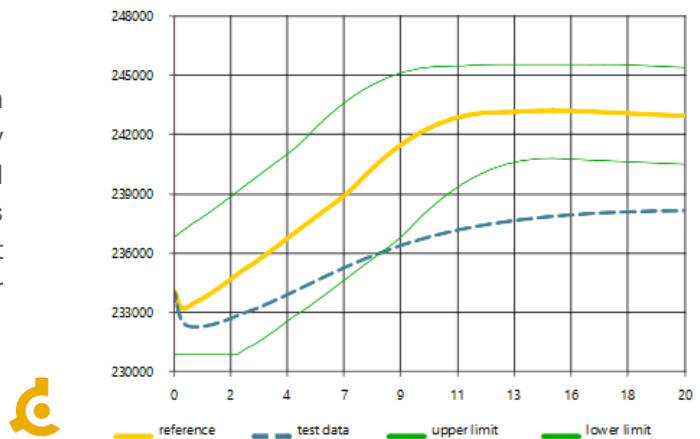
- Get a better model understanding by thermodynamic **state-charts** in DaVE
- Transfer your **Modelica model diagram** to a **DaVE P&I flow chart** with a single click
- Generate a **standardized DaVE-TIL evaluation** with a single click
- Easily **add or replace results** in an existing DaVE file to keep your visualizations up to date



DaVE with a visualization of an automotive thermal management system

Compare Time Series

Compare two data files to **identify differences** in **transient behavior**, with results visualized directly in DaVE. The error tolerance and compared variables can easily be customized. Renaming rules for variable matches are available and direct graphical feedback enables a user-friendly filter selection.



Transient variable comparison; green lines mark the tolerance band

Utilities

- **FMU License Embedding:** Embed the TIL License into an exported FMU to run the FMU without a runtime license check.
- **Multi-Model Simulation Loop:** Simulate all models in a package in series. Use manual model selection to skip unintended models.
- **Model Diagram Export (PNG/SVG):** Export the model diagram view in high quality for good documentation.