



DATASHEET

AVEVA™ Process Optimization

Design sustainable process Performance optimization with rigorous equation-based modeling es at the speed of the market

AVEVA Process Optimization provides a group of applications for the simulation, data reconciliation, and optimization of continuous processes in the refining, petrochemical, and gas processing industries.

To give engineers and operators the confidence they need to make fast decisions, the solution provides results based on current economic and process trends, ensuring that models always accurately reflect process behavior.

Overview

Summary

AVEVA Process Optimization first-principles modeling methods ensure real-time operational excellence and enable accurate offline decision-making and analysis. AVEVA Process Optimization provides optimum sustainable plant performance with maximized returns on investment.

Business value

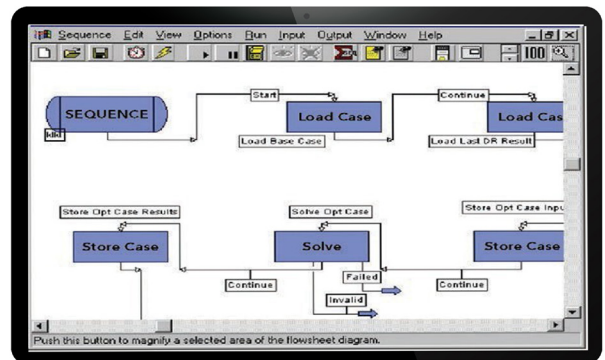
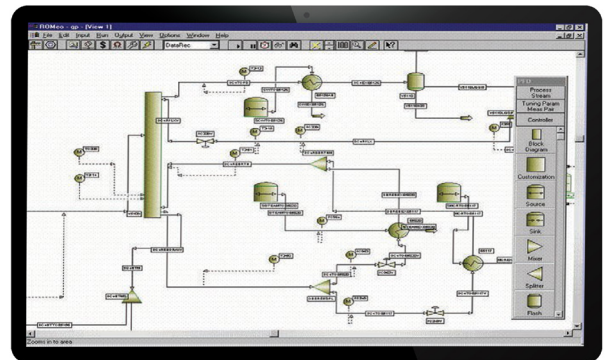
Optimization is where operations meet economics. AVEVA Process Optimization can sharpen plant performance and profits. Typical benefits range from \$0.05 to \$0.25/bbl throughput, with a payback period of one year or less.

Maintainable optimization

AVEVA proudly offers AVEVA Process Optimization, a well-proven, comprehensive solution to today's plant optimization challenges. AVEVA Process Optimization is the only software product that has been designed specifically to address the need for real-time, non-linear optimization of continuous processes in oil and gas processing, refining, and petrochemicals. AVEVA Process Optimization uses real-time process and economic data to determine set points that guarantee maximum operating profit while satisfying all regulatory requirements. AVEVA Process Optimization employs first-principles simulation techniques with proven data reconciliation and optimization technologies to provide maximum, sustainable plant performance and increased return on investment. Typical benefits range from \$0.05 to \$0.25/bbl throughput, with payback periods of one year or less.

Integrated modeling makes optimization easy

AVEVA Process Optimization is the only complete process optimization solution that integrates heat and material balance, rigorous simulation, data reconciliation, gross error detection, economic optimization, and performance monitoring into a single-user environment. Its online modeling and optimization capabilities utilize industry-proven thermodynamic methods and data to generate highly accurate operating information. This enables control systems and processes to react quickly and precisely to changes in feed and product pricing, energy costs, and equipment performance. AVEVA Process Optimization's integrated interface and drag-and-drop functionality minimize the user's learning curve and accelerates real economic benefits. Its equation-based optimization engine is unmatched in its ability to monitor large processes.



Substantial benefits of AVEVA Process Optimization

Evaluate “what-if” scenarios

AVEVA Process Optimization provides a Microsoft® Excel-based and flowsheet-based interface to enable offline “what-if” scenarios using precise models to represent your plant’s actual operating conditions. AVEVA Process Optimization models can also be used for procurement planning and for evaluating the benefits of process changes.

Automate optimization and reporting

AVEVA Process Optimization real-time system provides an integrated, graphical workflow management environment that enables users to automate optimization and reporting. Users can define complex event sequences for closed-loop optimization without manual intervention. Users can also configure task sequences to detect operational events or conditions (e.g., steady state) or to run on a scheduled frequency.

Visualize results and key performance indicators

Users can quickly visualize AVEVA Process Optimization’s industry-proven results using embedded reporting and webpage dashboards, which display key performance indicators and other important operations information.

AVEVA Process Optimization reporting features enable plant staff to:

- Satisfy all physical and quality operating constraints
- Perform “what-if” analyses to improve product yields and quality
- Determine the cost of constraints and the benefits of debottlenecking
- Identify faulty instrumentation and resolve processing problems quickly
- Utilize personnel, inventory, and capital resources more efficiently
- Acquire current information for more accurate short-term and long-term planning

These on-demand reporting features enable AVEVA Process Optimization users to make operational decisions faster and enhance the profitability of the process.

Applications

AVEVA Process Optimization’s unified modeling environment provides complete flowsheet definition, simulation setup, data reconciliation, and optimization for refiners, petrochemical companies, and NGL/ LNG producers. The average payback period is 6-12 months.

- **AVEVA Process Optimization in refining:**

Increase profits by optimizing feed train, crude processing, and vacuum units, including hydrocracking and catalytic cracking applications – even entire refineries. AVEVA Process Optimization interfaces with state-of-the-art refinery models to accurately represent kinetic reactor behavior. AVEVA Process Optimization also offers native refinery reactor models that complete the refinery-wide modeling and optimization capabilities.

- **AVEVA Process Optimization in olefin production:**

An integrated SPYRO module and Technip’s rigorous coil modeling technology ensure accurate representations of furnace operations.

- **AVEVA Process Optimization in NGL/LNG:**

Increase plant profits by quickly responding to changing market conditions.

- **AVEVA Process Optimization in utilities:**

Optimizes utility systems and utility plant flowsheets with the power of mixed integer non-linear programming (MINLP) functionality in the solving process.

Easy to implement

Equation-based modeling enables flexible model specifications and allows project implementation and optimization to start at any level and scale.

Easy to customize

AVEVA Process Optimization provides a powerful graphical mechanism for extending its library of models and correlations. With its integrated algebraic modeling language, AVEVA Process Optimization users can directly customize their models and calculations to fit their purpose.



Easy to integrate

AVEVA Process Optimization’s graphical user interface and open architecture support OPC, ODBC, and other data communication protocols, as well as direct interfaces to industry-standard process historians. Additionally, AVEVA Process Optimization can communicate with third-party products using OPC-UA.

Performance monitoring and diagnosis

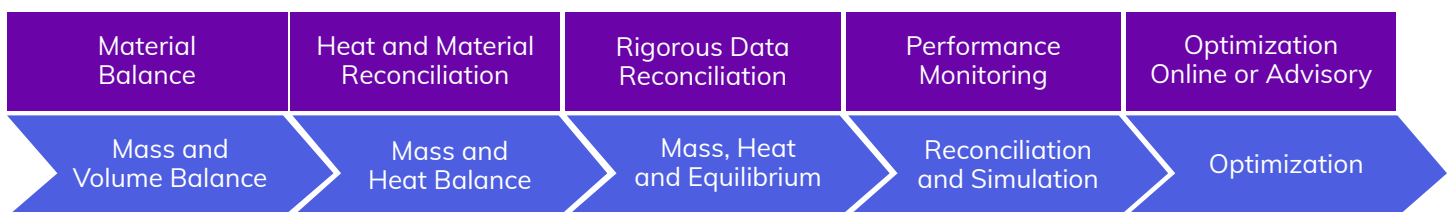
AVEVA Process Optimization uses validated and reconciled data to calculate performance information including exchanger fouling, catalyst activity, compressor, and column tray efficiencies. Users can efficiently diagnose the root cause of performance degradation and processing bottlenecks. By quickly identifying problem areas before they trigger an alarm, plants can avoid near misses, accidents, and unscheduled shutdowns. AVEVA Process Optimization includes methods to prevent inaccurate or faulty information from adversely affecting plant control systems.

Make more informed decisions

AVEVA Process Optimization’s external data interface (EDI) enables the retrieval of process and economic information from numerous sources, including the DCS, laboratory, data historians, ERP, plant instrumentation, or any OPC, ODBC, OPC-UA, and other industry-standard compliant applications. It is easy to access complete and accurate information to support optimal decision-making and reliable planning.

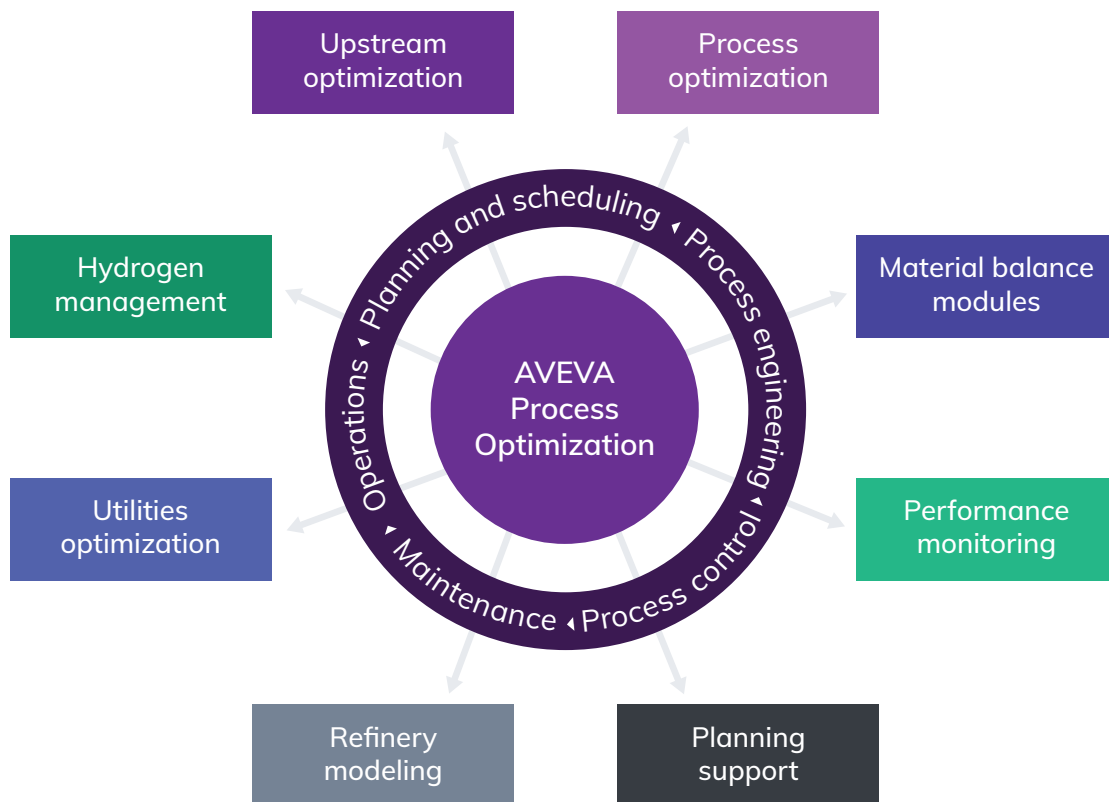
The only complete choice

AVEVA Process Optimization is the only scalable solution for maximizing profits while minimizing plant and processing costs. It is also the only commercial solution that integrates rigorous simulation, data reconciliation, gross error detection, optimization, and performance monitoring into a single, user-friendly environment. No other product offers greater accuracy or more reliable results. When your plant’s profitability is on the line, choose AVEVA Process Optimization.



AVEVA Process Optimization overview

AVEVA Process Optimization is a set of application modules that deliver the latest generation of rigorous model-based solutions to help users obtain peak performance from their operating units.



Design, operate, optimize a safe and profitable plant

Since 1967, AVEVA has helped industry leaders improve asset performance and utilization with integrated simulation, optimization, training, and process control software and services that span across the lifecycle of processing facilities.

Customers range from novice users to executive experts from a variety of industries, including oil and gas, petroleum refining, petrochemical and specialty chemical manufacturing, power generation, EPC, and more. Unlock the value in your data with industrial software solutions that minimize capital demands, optimize facility performance, and maximize investment returns.

For more information on AVEVA Process Optimization, please visit: aveva.com/en/products/process-optimization