

## Bentley AXSYS.Process (SELECTseries 5)

Automated Front-End Engineering Design for Process Engineering

In any major process plant project, 80 percent of the capital expenditure is committed during the conceptual design phase. Bentley® AXSYS.Process helps users minimize this expenditure and achieve better front-end engineering design (FEED) by allowing increased evaluation of conceptual design cases and managing data and workflow to reduce project time.

### Optimized Evaluation of Design Concepts

Optimizing front-end engineering design generally entails spending time evaluating alternative designs and then selecting the best case from these alternatives. Bentley AXSYS.Process allows users to perform more designs in less time and evaluate these designs more thoroughly in order to find the most cost-effective case.

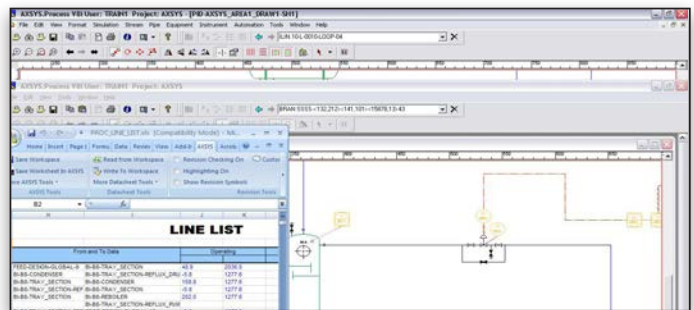
Bentley AXSYS.Process provides a common database and environment to allow the sharing of process simulation and project evaluation data across the enterprise. This optimizes the engineering workflow and eliminates data re-entry and duplication. A comprehensive change management system tracks all changes made to data during the FEED project and can manage multiple revisions allowing for parallel design cases.

*Bentley AXSYS.Process provides a common database and environment to allow the sharing of process simulation and project evaluation data across the enterprise.*

### Interfaces with Major Process Simulators and Heat Exchanger Applications

Since Bentley AXSYS.Process manages the process data, it dramatically reduces design effort by linking directly to other engineering programs. Bentley AXSYS.Process interfaces with major process simulators including Aspen Plus, HYSYS, PRO/II and UniSim Design. Information from a simulation can be loaded into Bentley AXSYS.Process, including stream properties and detailed unit operation data, along with the associated connectivity. Once this information has been loaded, it can be manipulated or combined with other simulations to generate a complete plant simulation model.

For detailed heat exchanger calculations, Bentley AXSYS.Process supports the major design programs from HTRI and HTFS. These applications can be run in design or rating modes.



*Users employ the software to integrate conceptual process design and functional project engineering.*

### Automatic Drawing Generation

Bentley AXSYS.Process uses a powerful rule base to automatically generate process flow diagrams (PFDs) and piping and instrument diagrams (P&IDs). These drawings are easily configured and extended to include specific graphical symbols and associated data. Drawings can be output to multiple drawing formats.

### Customizable Datasheets and Reports

The use of Microsoft Excel and a comprehensive set of customizable datasheet and report formats provide easy access to and manipulation of any information in a familiar environment.

### Flexible Workflows

Bentley AXSYS.Process has been designed with maximum flexibility and does not impose fixed or rigid processes. Information can be integrated, analyzed and edited in both a graphical and a non-graphical environment, or it can be directly accessed via any OLE-compliant application. Users also have control over their work process by utilizing the extensive change management features that are included. The software tracks changes during the project, allowing users to revert to previous designs. Data sheets can be published to Bentley's ProjectWise® for storage, markup, and revisioning.

### Extensive Customization Tools

Bentley AXSYS.Process provides an extensive set of tools and utilities to configure the interface as well as write automation procedures through a comprehensive macro language. This comprehensive environment extends beyond the scope of any single discipline and into the enterprise. There is support for VBA, ODBC, XML, and export and exchange capabilities to a number of design software systems including Bentley OpenPlant, AutoPLANT®, and PlantSpace®.

## System Requirements

### Processor:

400 MHz Intel or AMD processor  
(1 GHz or higher recommended)

### Memory:

512 MB (2 GB recommended)

Additional memory over the minimum requirements shown above, will result in improved performance

### Hard Disk:

Prerequisites for Bentley Desktop applications 08.11.09 require a minimum of 400 MB of disk space to install all components

Bentley AXSYS i-models engine requires 500 MB of disk space to install all of its components

400 MB hard disk space for installation including sample project databases. The actual space required will vary with each machine

### Video:

Any industry-standard video card with a minimum of 8 MB memory

### Operating System:

Microsoft Windows XP Professional (SP3) or Microsoft Windows 7 (32- or 64-bit)

### Software Prerequisites:

Prerequisites for Bentley Desktop Applications v08.11.09.03

**Find out about Bentley at: [www.bentley.com](http://www.bentley.com)**

### Contact Bentley

1-800-BENTLEY (1-800-236-8539)  
Outside the US +1 610-458-5000

### Global Office Listings

[www.bentley.com/contact](http://www.bentley.com/contact)

## AXSYS.Process At-A-Glance

### Simulation Interfaces

- Use unlimited simulation cases and topologies
- Load multiple simulation topologies into one project
- Support for HYSYS version 2.4.2 and upwards to V8.4
- Support for Aspen Plus versions 12.1 to V7.0, V8.2, V8.4
- Support for UniSim Design version R350.1 and upwards to R430
- Support for PRO/II versions 7.0 through 9.2
- Import other data from other simulators through our Generic Excel import mechanism

### Process Flow Diagrams (PFDs)

- Generate automatically PFDs based on information from the simulation and user rules
- Track what simulation was used
- Overwrite rules manually after PFD has been created
- Full CAD editing functionality
- Export PFDs to DXF or DGN formats

### Piping & Instrumentation Diagrams (P&IDs)

- Generate automatically P&IDs based on PFD diagram and user rules
- Track which PFD was used to create the P&ID
- Intelligent connectors automatically adjust when objects are moved
- Comprehensive symbol library
- Automatic concept of pipe flow and order of components in a pipe line
- P&IDs can be exported to DXF or DGN formats
- Intelligent P&IDs can be exported to Bentley AutoPLANT P&ID, Bentley PlantSpace P&ID

### Microsoft Excel Datasheets and Reports

- Full read/write capabilities into the AXSYS database
- Data sheet definitions and report definitions are fully customizable
- Formats can become templates in the database

- Off-line edits and the AXSYS database are compared and synchronized
- Templates are created or modified using an interactive database mapping tool

### Thermal Flash Support

- Perform relief or other flash calculations directly in AXSYS
- Modify pressure, temperature or vapor fraction of your stream and send back to the simulation for flashing

### Heat Exchanger Interfaces

- Create input file for heat exchanger design program
- Define basic mechanical configuration information
- Track what files have been created for each program, by user and date
- Support for design and rating modes in XIST from HTRI
- Support for design, simulation, rating, and thermosyphon modes in TASC from HTFS

### Equipment Sizing

- Create an unlimited number of process cases
- Create an unlimited number of sizing cases per equipment item
- Size pipes based on PFD or based on P&ID

### Project Control

- Restrict database access
- Define object level access
- Control access to properties
- Track who makes modifications
- Compare utility for objects and workspace changes

### Revision Management

- Multiple revisions can be defined and stored within the project
- Revision numbers automatically added when object is modified

### Configuration

- Virtually all aspects of AXSYS can be configured to suit your corporate and project standards without programming
- Most configurable components are defined within the AXSYS database

Item	Type	Unit	Connected to	Parameter	Value	Units
PERFORMANCE OF ONE UNIT						
11	Flow	kg/hr		Flow	13322	66002
12	Flow	kg/hr		Flow	13322	66002
13	Flow	kg/hr		Flow	13322	66002
14	Flow	kg/hr		Flow	13322	66002
15	Flow	kg/hr		Flow	13322	66002
16	Flow	kg/hr		Flow	13322	66002
17	Flow	kg/hr		Flow	13322	66002
18	Flow	kg/hr		Flow	13322	66002
19	Flow	kg/hr		Flow	13322	66002
20	Flow	kg/hr		Flow	13322	66002
21	Flow	kg/hr		Flow	13322	66002
22	Flow	kg/hr		Flow	13322	66002
23	Flow	kg/hr		Flow	13322	66002
24	Flow	kg/hr		Flow	13322	66002
25	Flow	kg/hr		Flow	13322	66002
26	Flow	kg/hr		Flow	13322	66002
27	Flow	kg/hr		Flow	13322	66002
28	Flow	kg/hr		Flow	13322	66002
29	Flow	kg/hr		Flow	13322	66002
30	Flow	kg/hr		Flow	13322	66002
31	Flow	kg/hr		Flow	13322	66002
32	Flow	kg/hr		Flow	13322	66002
33	Flow	kg/hr		Flow	13322	66002
34	Flow	kg/hr		Flow	13322	66002
35	Flow	kg/hr		Flow	13322	66002
36	Flow	kg/hr		Flow	13322	66002
37	Flow	kg/hr		Flow	13322	66002
38	Flow	kg/hr		Flow	13322	66002
39	Flow	kg/hr		Flow	13322	66002
40	Flow	kg/hr		Flow	13322	66002
41	Flow	kg/hr		Flow	13322	66002
42	Flow	kg/hr		Flow	13322	66002
43	Flow	kg/hr		Flow	13322	66002
44	Flow	kg/hr		Flow	13322	66002
45	Flow	kg/hr		Flow	13322	66002
46	Flow	kg/hr		Flow	13322	66002
47	Flow	kg/hr		Flow	13322	66002
48	Flow	kg/hr		Flow	13322	66002
49	Flow	kg/hr		Flow	13322	66002
50	Flow	kg/hr		Flow	13322	66002

Access information via any OLE-compliant application.

Name	Class	Property	New Value	Existing Value	Operation
STVAL DESIGN GLOBAL	STVAL	AXSYS Class Name	STREAM-WORLD		New
STVAL DESIGN GLOBAL	STVAL	Simulation Name	DESIGN		New
STVAL DESIGN GLOBAL	STVAL	FlowSheet Name	GLOBAL		New
STRE DESIGN GLOBAL-BB-8E STRE	STRE	Stream ID (Name)	BB-8E-TOWER_BOLUP		New
STRE DESIGN GLOBAL-BB-8E STRE	STRE	Case Point	CASE DESIGN GLOBAL-BB		New
STRE DESIGN GLOBAL-BB-8E STRE	STRE	FeedForward Naming Flag	FREEFORMAT		New
STRE DESIGN GLOBAL-BB-8E STRE	STRE	AXSYS Class Name	STREAM		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Stream Type	Standard		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Source Block ID	BB-8E-REBOILER		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Destination Block ID	BB-8E-TRAY_SECTION		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Main Flow Rate	Unit		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Main Flow Rate	106.82(3)		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(1)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(2)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(3)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(4)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(5)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(6)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(7)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(8)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(9)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(10)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(11)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(12)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(13)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(14)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(15)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(16)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(17)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(18)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(19)	0.0000000		New
CASE DESIGN GLOBAL-BB-8E CASE	CASE	Component Mole Fraction(20)	0.0000000		New

Comprehensive change management system tracks all changes made to data during the FEED project.