



BENTLEY® AUTOPIPE®

THE MOST PRODUCTIVE TOOL FOR PIPE STRESS ANALYSIS.

Bentley AutoPIPE is a native Windows program for calculating piping code stresses, loads and deflections under both static and dynamic loading conditions. AutoPIPE analyzes systems of any complexity, with special features for buried pipeline analysis, wave loading, water or steam hammer, FRP/GRP pipe and built-in pipe/structure interaction.

AutoPIPE combines object-based graphics technology with dynamic input & result spreadsheets and advanced analytical capabilities not found in other programs to provide a truly unique tool for pipe stress analysis and design.

Unique, Object-based Graphical User Interface

The OpenGL CAD graphical user interface makes creation and modification of the pipe stress model easy. Point and click on the graphical model to insert, modify or delete pipe supports, loads or components. After each operation, the model display is automatically updated for instant visual feedback. Using AutoPIPE graphical select options, you can insert, delete or modify components, supports, pipe properties, temperatures/pressures, or other parameters across an entire range of points with one command. Graphical selection of ranges is also used for cut, copy and paste operations. Check, sort or make global changes to the input data quickly using the interactive Excel-like grid spreadsheets. AutoPIPE allows up to 99 undo/redo steps to recover from mistakes, perform 'What-If' analysis or to iterate quickly through design scenarios.

Advanced Analysis Features for Varied Piping Environments

AutoPIPE provides unique capabilities for process, power, oil & gas, nuclear, underground, offshore FPSO platform and subsea pipeline areas with 24 international piping codes. Advanced AutoPIPE capabilities include built in wave loading, buried pipeline analysis, jacketed piping, dynamic loadings, and orthotropic FRP/GRP piping analysis. Also thermal bowing of partially filled pipes, thermal transient, pipe/structure interaction, fluid transient with closure time and relief valve utilities, advanced load sequencing, non-linear support gaps and friction and jacketed piping. Local stress calculation to WRC107, WRC297, PD5500, KHK, API650 is available using WinNOZL.

Graphical Review of Analysis Results

After analyzing a system, you can click on the graphical model to instantly view stresses, deflections, forces and moments. Color-coded results and pop-up windows enable

the engineer to quickly identify and investigate critical areas without having to review a voluminous amount of batch output data. Up to 500 load combinations can be viewed with the powerful on-screen results grid which provides interactive filtering, sorting and printing of maximum result values.

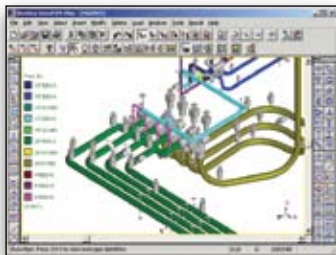
Interface with CAE, STAAD Pro and Plant Design CAD Systems

The only solution on the market today with tight integration between piping and structural analysis, AutoPIPE can automatically transfer pipe support loads as well as import complete structures to and from #1 structural program STAAD.Pro®, saving weeks of design time and providing safer, more realistic engineered designs. Import 3D plant design CAD models from Bentley AutoPLANT, Bentley PlantSpace, Intergraph PDS or SmartPlant or Aveva PDMS into AutoPIPE to save hundreds of manhours and ensure accurate pipe stress models.

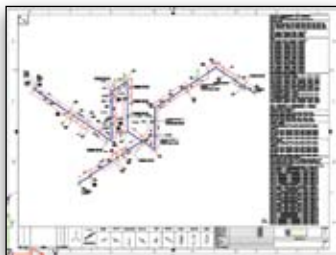
Full read/write interoperability with Caesar II pipe stress program. ProjectWise® Navigator XM viewer of AutoPIPE model and data alongside the CAD model to make early design decisions. Stress Isometric with fully dimensioned plot and custom data to show pipe stress Engineer's changes.

Quality Assurance

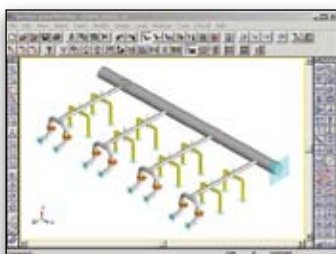
AutoPIPE rigorous quality assurance program has passed numerous independent NRC and NUPIC on-site audits to 10CFR50 App. B, ISO9001, CSA N286.7-99, ASME NQA-1, and ANSI N45.2 standards, making AutoPIPE one of the few PC-based pipe stress programs with highest level of software quality approved for use in nuclear safety applications. New AutoPIPE Nuclear provides design of critical safety pipework to ASME Class 1, 2, or 3.



Color-coded pipe properties allow you to quickly identify and investigate critical areas.



Automatic fully dimensioned stress isometric generation.



AutoPIPE features graphic selection of piping & structural model to cut, copy or paste.

SYSTEM REQUIREMENTS

Processor:

Pentium II 400MHz

Operating System

Windows 2000 or XP Pro or Vista

Memory

128 MB RAM

Disk Space

174 MB (200 MB recommended)

ABOUT BENTLEY

Bentley Systems, Incorporated is the global leader dedicated to providing comprehensive software solutions for sustaining infrastructure. Architects, engineers, constructors, and owner-operators are indispensable in improving our world and our quality of life; the company's mission is to improve the performance of their projects and of the assets they design, build, and operate. Bentley sustains the infrastructure professions by helping to leverage information technology, learning, best practices, and global collaboration – and by promoting careers devoted to this crucial work.

For more information, visit
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BENTLEY AUTOPIPE AT-A-GLANCE

Modeling

- Single line, wire-frame and solid render drawing modes
- CAD style single, double or quad view ports
- Switch vertical axis (Y or Z) on the fly
- New On-screen Distance Calculator to check coordinate accuracy and clearances
- New built-in Valve Actuator for more accurate valve modeling
- New segment management: reverse, split, join and re-order segments
- New management of CAD line numbers
- New connectivity checker to avoid model disconnects
- English, Metric, SI, and user-defined units
- Extensive library of temperature-dependent piping code material properties and allowable stresses
- ANSI/ASME, DIN, JIS, GD, GB and GRP/FRP standard piping component and material libraries
- Structural steel modeling using 17 countries of structural steel libraries with nonlinear pipe/structure interaction
- Expansion joint modeling with tie rod assemblies
- Import model from AutoPLANT, PlantSpace, Intergraph PDS or SmartPlant, Aveda PDMS or PlantFLOW®
- Automatic Stress Isometric generation DXF, DWG or DGN with engineers mark-ups
- Export model geometry data into AutoPLANT, AutoCAD and MicroStation®

Dynamic Analysis

- Time history dynamic analysis with ground motion
- Mode shapes, accelerations and natural frequencies
- Harmonic load analysis
- Response spectrum and shock spectra
- Multiple spectrum enveloping
- NRC spectra and code case N411 (PVRC) damping and spectra
- NUREG.CR-1677 benchmark
- Automatic mass discretization
- Missing mass and ZPA correction

Piping Codes

- ASME B31.1 (1967,1992, 2004, 2005, 2007), B31.3, B31.4, B31.8
- ASME Sec. 3, Class I, II & III (1972 to 2004)
- European Standard Metallic Industrial Piping EN13480
- B31.4 Offshore, B31.8 Offshore & CSA_Z662 Offshore codes
- Canadian CAN/CSA-Z662
- British Standard BS 806, BS 7159 (GRP piping code)
- Swedish Piping Code (SPC) Method 2
- Norwegian Det Norske Veritas (DNV) and TBK 5-6
- Dutch Stoomwezen D1101
- Japanese KHK, MITI class 3, JSME NC1-PPC and General Fire Protection code
- French RCC-M and SNCT

Analysis

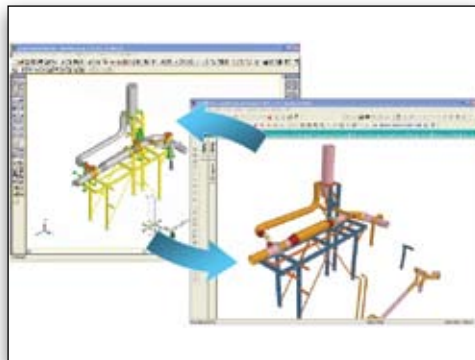
- Calculate up to 100 thermal, 10 seismic & wind and 10 each of dynamic load cases.
- New Unlimited static analysis to examine different loading scenarios

including hot modulus

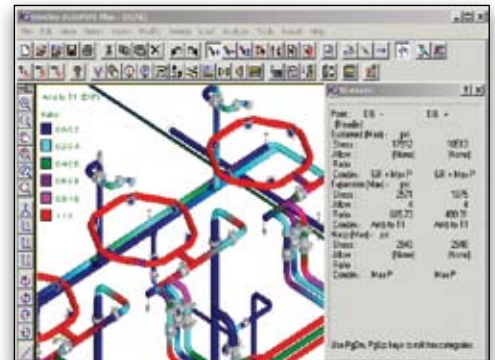
- Automatic generation of wind profiles per ASCE and UBC guidelines
- Wave loading and buoyancy for offshore applications
- Hydrotest analysis with locking spring hangers
- Fluid transient utilities for water and steam hammer plus relief valve load analysis
- Automatic spring hanger sizing from 21 manufacturers
- State-of-the-art nonlinear support gap, friction and soil interaction solutions
- Thermal bowing analysis
- New Thermal transient analysis (TTA) for ASME Class 1
- New Ec/Eh ratio applied to expansion stresses for any piping code
- Integrated flange loading analysis per ANSI B16.5
- Nozzle flexibility analysis per API 650 App. P, ASME class 1, WRC 297 and Biljaard methods

Results

- Results saved to Microsoft Access MDB file
- New Automatic or user-defined load combinations grid
- Automated Batch processing
- Maximum intermediate stresses along any component
- Reference point for manufacturer equipment loading reports
- Rotating equipment evaluation for API 610, NEMA and API617, and user-defined
- Filtering and sorting of results by stress, deflection or load criteria for custom reports



Bi-directional integration with #1 Structural program STAAD pro



You can click on the graphical model to instantly view stresses.