



Bentley® AutoPIPE Nozzle

Accurate and streamlined calculation of local stresses at junctions, attachment, and connection points

Bentley® AutoPIPE® Nozzle is a stand-alone engineering application that also fully integrates with AutoPIPE for calculating local stresses at nozzle/vessel junctions, trunnion attachment points, clip connections, and lug attachments on the vessel shell. Based on well-known engineering design standards, AutoPIPE Nozzle helps engineers and designers quickly determine whether or not the wall of a pressure vessel, exchanger or tank can withstand piping loads on the nozzle or at clip and lug connections.



The Bentley AutoPIPE Nozzle interface allows data to be added on one screen.

Efficient User Interface

The efficient Windows interface allows all the input data to be entered on one screen to create the model. The input data and a graphical sketch of the nozzle/vessel configuration are always shown, which provides constant visual feedback. Project and user information can be entered for streamlining file management.

Post Processing Reporting

QA-style reports with input data, summary and detailed stresses can be saved in multiple convenient formats, including RTF (compatible Word format), HTML, and Adobe Acrobat PDF.

Combination	Stress Type	Actual	Allowable	RA
Pressure	Membrane	211.5	155.1	1.36
GR	Membrane	211.4	155.1	1.36
GR+E1	Membrane	211.4	155.1	1.36
GR-F1	Membrane	211.4	155.1	1.36
GR+F2	Membrane	211.4	155.1	1.36
GR-E2	Membrane	211.6	155.1	1.36
GR-W1	Membrane	211.6	155.1	1.36
GR-W2	Membrane	211.6	155.1	1.36
GR-W3	Membrane	211.6	155.1	1.36
GR-T1	Combined	259.6	310.3	.84
GR-T1+E1	Combined	259.5	310.3	.84

Users can easily sort summary stresses.

Advanced Modeling Capabilities

You can choose many different vessel/nozzle configurations, including cylinders, spheres, cones, semi-ellipses, and torispheres with hollow nozzles or support lug attachments, including oblique angle and hillside options. Reinforcing pads can easily be added, including automatic pad design and load attenuation options. Extensive, built-in material libraries contain code-dependent stress allowables, including the latest ASME Section VIII Division 1 and 2, Section I and Section III codes.

Interface With Pipe Stress

AutoPIPE Nozzle automatically imports piping forces and moments from the Bentley AutoPIPE application and can compute piping stress intensification factors (SIF) for use in an AutoPIPE pipe stress model.

Case	Radius	Force	Moment	SIF
T1	10000	10000	10000	1.0000
T2	10000	10000	10000	1.0000
T3	10000	10000	10000	1.0000
T4	10000	10000	10000	1.0000
T5	10000	10000	10000	1.0000
T6	10000	10000	10000	1.0000
T7	10000	10000	10000	1.0000
T8	10000	10000	10000	1.0000
T9	10000	10000	10000	1.0000
T10	10000	10000	10000	1.0000

QA-style reports can be saved in multiple formats.

The analysis engine to compute all the stresses for many different load combinations takes only seconds.

Fast Analysis

The analysis to compute all the stresses for many different load combinations takes only seconds. Sorted summary stresses and ratio results are displayed on the same screen to provide instant visual feedback for any overstress condition. Automatic and customized load combinations are analyzed for each design code and the maximum allowable loads are calculated.

Recommended System Configuration

Processor:

Intel Pentium IV or higher

Operating System:

Microsoft Windows XP Professional SP3 or later, Microsoft Windows Vista Business or higher, Microsoft Windows 7

Web Browser:

Microsoft Internet Explorer 6 or greater

Memory (RAM):

256 MB

Hard Disk:

36 MB minimum free hard disk space

Graphics Card:

Any industry-standard video card

Other Prerequisites:

IEG Security (free download at Bentley SELECT)

PDF Reader:

Adobe Acrobat Reader 8.0 or greater

Find out about Bentley at: www.bentley.com

Contact Bentley

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Global Office Listings

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Bentley AutoPIPE Nozzle At-A-Glance

Design Codes and Libraries

- Access to internationally recognized design codes:
 - » Welding Research Council (WRC) Bulletin 107, including WRC 368 and ASME VIII, Div. 1 & 2 automatic load combinations and stress allowables
 - » WRC Bulletin 297, including WRC 368 and ASME VIII, Div. 1 & 2 automatic load combinations and stress allowables
 - » British Standard PD5500, Appendix G: 2000 with Enquiry case 91 ASME materials
 - » American Petroleum Institute design code 650, App. P
 - » Japanese KHK Level 1:2006 and KHK Level 2:2006
- Extensive material libraries for ASME VIII Div I, Div II and PD5500, 1998 ASME VIII code case 2290, 2000 ASME I, III & IV, PD5500/enquiry case 91 ASME materials to the PD5500, JIS, KHK
- Built-in standard unit files—English, SI, metric and mixed-metric
- JIS and DIN pipe property library
- Filter material libraries selected design code

Stress Analysis

- Option to include pressure thrust in the deadweight case
- Automatic conversion of local X, Y, Z axes loads to the selected design code
- Analyze oblique or hillside nozzle configurations
- Vessel/nozzle orientation screen
- PD5500 deflection and nozzle stiffness calculations
- Compute piping SIFs for use in a pipe stress model
- Sorted stresses on the load combinations
- Automatic batch processing of multiple models
- Support for fatigue cyclic loads
- AutoPIPE integration support for multiple analysis sets

Customized Reporting

- Defined project details for QA reports
- Customized reports
- Reports saved as RTF (compatible Word format), HTML, and PDF formats
- One-page summary report including input, loads, and maximum stresses

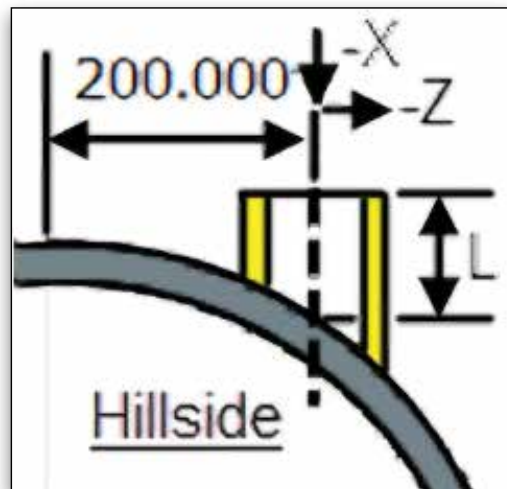
Shell / Nozzle Types

- Nozzle attachment types: hollow/solid round, hollowsolid rectangular, and attachments (includes eight different configurations)

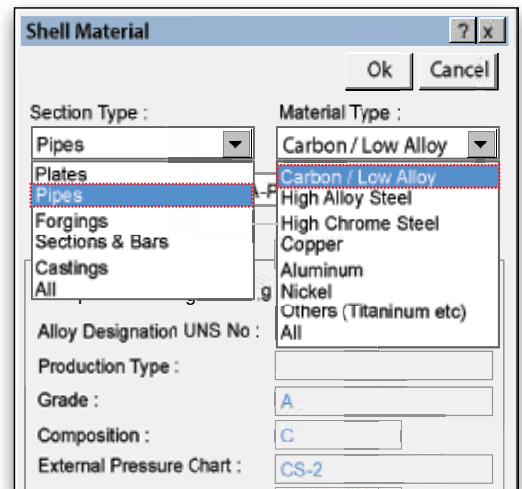
- Shell types: cylindrical, conical, spherical, semi elliptical, and torispherical
- Shell deflections, rotations, and stiffness values are calculated for all shell types
- PD5500 Annex G for longitudinal, circumferential and radial loadings

Load Calculations and Options

- Maximum allowable loads calculated
- Automatic load and geometry links with Bentley AutoPIPE pipe stress analysis
- Analyze multiple load cases (up to 200 static and dynamic load cases) in the same run
- Automatic and user load combinations up to 10,000 in the same run
- Load attenuation method applied at edge of reinforcing pad
- Option to enter loads at an external projection from the shell wall
- Option to include pressure thrust in gravity and hydrotest cases
- Option to ignore zero stress results
- File management using the project option to view summary details of all model files in any directory



Advanced modeling capabilities include hillside/oblique nozzles.



Bentley AutoPIPE Nozzle includes filtered material libraries.