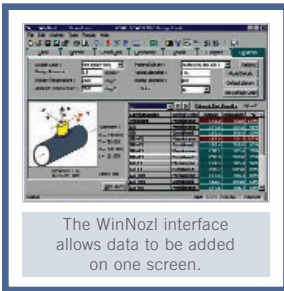


# WINNOZL



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

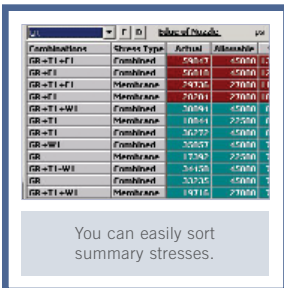


The WinNozl interface allows data to be added on one screen.

WinNOZL is a native Windows-based software program 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, WinNOZL 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.

### 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.



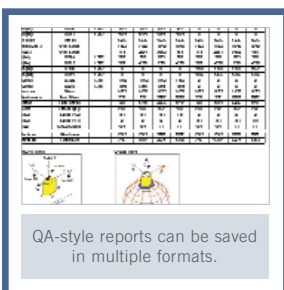
You can easily sort summary stresses.

### 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.

### Fast Analysis

The analysis engine 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.



QA-style reports can be saved in multiple formats.

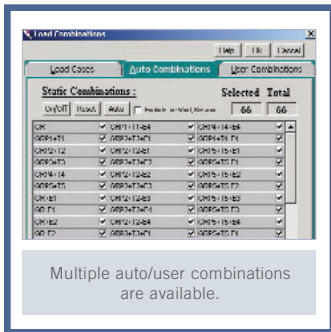
### Post Processing Reporting

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.

### Interface with Pipe Stress

WinNozl 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.

## WINNOZL AT-A-GLANCE



### Design Codes and Libraries

- Access to internationally recognized design codes: WRC 107, WRC 297, BS PD5500, API 650 and KHK 1 & 2
- 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 pepe property library

### Shell Types

- Shell types: cylindrical, conical, spherical, semi-elliptical, and torispherical
- Nozzle attachment types: hollow or solid round, hollow or solid rectangular
- Shell deflections, rotations and stiffness values are calculated for all shell types per PD5500 Annex G for longitudinal, circumferential and radial loadings

### Load Calculations and Options

- Maximum allowable loads calculated
- Automatic load and geometry links with Bentley's 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 total of 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

### Stress Analysis

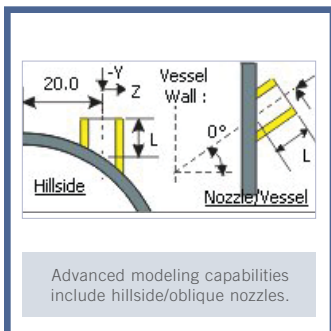
- Option to include pressure thrust in the deadweight case
- Automatic conversion of local X, Y, Z axes loads to the selected design code
- Analyze oblique or hillside nozzle configurations
- Vessel/nozzle orientation screen
- PD5500 deflection and nozzle stiffness calculations
- Compute piping SIFs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

### Customized Reporting

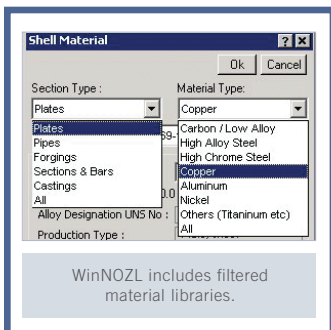
- Defined project details for QA reports
- Customized reports
- Reports saved as RTF (compatible Word format), HTML and PDF formats
- One page summary report including input, loads and maximum stresses

### WinNOZL Modules

- 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 1:1997 and KHK Level 2: 2000



Advanced modeling capabilities include hillside/oblique nozzles.



## WINNOZL SYSTEM REQUIREMENTS

- Processor: Pentium® II 400mHz
- Operating System: Windows® 98, Windows NT® 4.0 SP6, 2000, XP Pro
- Memory: 32MB RAM
- Disk Space: 21MB (30 MB recommended)

## CALL TODAY FOR MORE INFORMATION

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