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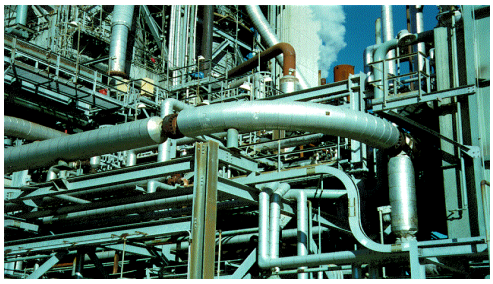
PipingSolutions was founded in 1971, to develop, market and distribute high quality, user-oriented engineering design software for use in the process and power industries worldwide.



TRIFLEX®- is a Piping System Analysis and Design Program that provides user-friendly data entry screens, an extremely flexible output report generator as well as superior input and output graphics. In Static Analysis mode, **TRIFLEX®** considers the effect of temperature change, pressure, weight, anchor and restraint movements as well as windload and support friction. **TRIFLEX®** sizes and selects spring supports, computes stresses according to numerous piping codes and compares computed values with allowable stresses, computes equipment loading and compares with allowable load criteria. In Dynamic Analysis mode, **TRIFLEX®** calculates mode shapes and frequencies, performs response spectrum and time history analysis, provides for the combination of results from the dynamic analysis with those of the static analysis and compares computed stresses with allowable stresses in accordance with the designated piping code.

TRIFLEX®- provides answers you can trust. Other programs may make that claim, but only **TRIFLEX®** has been proven in thousands of piping designs since 1971. In addition to over 500 commercial licenses worldwide, **TRIFLEX®** was chosen as the standard piping stress analysis software for the U.S. Dept. of Defence in their multi-year NAVFAC and NAVSEA contract awards.

TRIFLEX® will not only handle the simple piping flexibility analysis, but also reliable analyze the effects of fluid transients, nonstandard piping materials, nonlinear restraints, equipment vibrations, and nonlinear pipe/soil interaction, while providing advanced coding features and CAD interface technology not found in other programs - so that your engineering department can handle a lot more analysis in a lot less time.

Utilizing easy to learn interactive screens and graphics with error detection, piping engineers can become productive with **TRIFLEX®** in a day or two. If you haven't seen **TRIFLEX®** it's time you compared.

TRIFLEX® FEATURES

* Menu-driven screens with extensive on-line help
* English/International unit conversion
* Underground Soil Modelling
  - Soil stiffness and automatic soil restraint spacing per ASME B31.1, Appendix VII Guidelines.
  - Axial, Lateral, Transverse (Up and Down) soil restraints with non-linear soil stiffness for 4 different pipe movements.
  - User can easily modify soil stiffness and spacing.

* **TRIFLEX®** sustained stress and displacement stress calculations "automatically" consider if pipe moves away from a restraint in the operating analysis.
* Comprehensive interface from Intergraph PDS, PDMS, Plant-4D, CALMA Dimension III, CADPIPE and I-Sketch for transfer of geometry and physical properties data, I-Sketch, CAESAR to **TRIFLEX®** and **TRIFLEX®** to Microstation and Autocad.
* Built-in databases with user definable options for non-standard materials and vendor specific valve & flange weights.
* AISC structural shapes included in database.
* Advanced FRP pipe analysis.
* Screen option to use operating temperature modulus of elasticity for analysis of high temperature systems
* Modelling of Jacketed Piping
* Advanced coding features for faster model input
  - automatic handling of skewed piping w/restraints
  - copy, renumber, and move blocks of nodes
  - automatic handling of mitered elbows
  - code to midpoint of valves & flanges
  - merge separate jobs
  - multiple restraint directions can be input on the same data input screen as geometry and physical properties
* Anchor element allows different stiffness in all 6 degrees of freedom on one screen with option to "automatically" calculate anchor displacement.

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* Built-in buoyancy with offshore riser design codes
* Pitch & Roll to vary gravity axis
* ASME Sec. 3 analysis for calculation of nozzle & branch connection stresses and flexibilities
* SIF and Flexibility Factor equations included
* Automatic spring hanger sizing with piping analysis or stand alone matched with vendor tables.
* Nozzle release option at equipment connections for spring hanger sizing.
* Directional restraints, limit stops, and friction can be easily skewed using "tilt" options.
* Limit stop element allows different gap spacing in each direction with restraint stiffness option.
* Dynamic analysis: Mode Shapes and Frequencies, Response Spectrum, and "true" Time History Analysis With integrated waterhammer and relief valve synthesizers. Unique closed form solution algorithms provide the most accurate technology available for analysing piping responses to slug flow, waterhammer, steam trust, and other transient loads.

TRIFLEX® OUTPUT

* Animated vibration and time step graphic displays.
* Instantaneous graphics zoom, pan, rotate with node data and elements displayed.
* Deflected shapes, double line volumetric, colour coded stresses for display or plot.
* Graphics option to transfer into Autocad format.
* Input summary using easily understood keywords.
* Code reports provide minimum wall thickness with user definable mill tolerance.
* Flange Loading Compliance Report.
  (TRIFLEX automatically transfers forces and moments from piping analysis to equipment nozzles)
  - NEMA SM 23: Steam Turbine
  - API Std. 617: Centrifugal Compressors
  - API Std. 610: Centrifugal Pumps
  - ROT: User customized report using vendor supplied allowables
* Piping Code Compliance Reports with multiple case displacement stress range.
  - ANSI/ASME B31.1, B31.3, B31.4, and B31.8
  - ASME Sec. 3 Class 2 & 3.
  - U.S. NAVY Piping Code.
  - Norwegian and Swedish Piping Codes.
  - DNV, Statoil, and NPD offshore riser codes.
  - Polska (Polish) Norma PN-79 / M-34033d.
  - SNIP 2.05-06-85 Russian Transmission Piping code
  - BS 8010
  - BS 7159
  - DIN 2413 Wall Thickness
  - UK OOA (UK Offshore)
  - PREN 13480-3 European Code
* Availability on PC's, PC networks.

TRIFLEX® is known to be one of the most used

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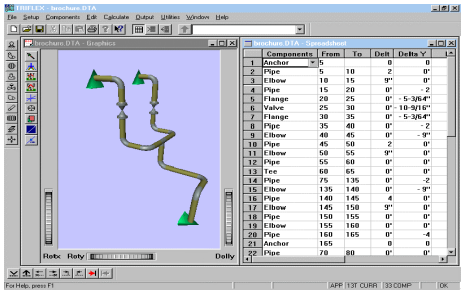
Pipe Stress programs, used by Engineering, oil companies and Plant owners.

From basic engineering through engineering phase and in maintenance operating of Plant and offshore installations.

TRIFLEX® is used by more than 90% of the market in the very advanced and complicated design and maintenance in the Norwegian Oil and Gas industry in the North Sea. The life cycles



solution is important for the industry not only engineering.

As a database driven Windows program with graphics with the same level as the best CAD program. The same is the geo integration from CAD to Pipe Stress. Bill of Material can be integrated by ODBC to CAD system and maintenance system as SAP.

Needed FEM calculation can be started automatically from **TRIFLEX®** and the national code for almost all countries as example Russian, Norwegian, Polish and many others. The Plant owner and oil companies can use **TRIFLEX®** World Wide from basic engineering to fatigue and maintenance of the Plant operation. The material standard can be used integrated at almost all CAD systems. Material standard in PDS or PDMS can be transferred.

TRIFLEX® are all other systems unique:

- Life cycles solution maintenance.
- Advanced FEM - Black Box.
- Integrated with CAD material and graphic.
- Integrated with Bill of Material system and local countries standard.
- Integrated with maintenance system as SAP through ODBC.
- You can make your on local language output.
- Support all over the world.
- Unique Dynamics integrated with Transient Fluid Flow program.
- All material standards.