

Expanded Definitions Below

Licenses...

PERPETUAL Lease:

- Unlimited license for a single user
- No kill date (after receipt of payment)
- No limit on runs/executions of the calculator
- Static and Static/Dynamic copies are sold at different prices in order to give the customer more pricing flexibility and customize the purchase towards their needs.
- The perpetual lease comes with one year of MUS (Maintenance, Update, and Support Services.)

Annual RENTAL:

- Unlimited usage for a period of one year
- One year kill date
- No limit on runs/executions of the calculator
- Static and Static/Dynamic copies are sold at different prices in order to give the customer more pricing flexibility and customize the purchase towards their needs.
- The annual lease comes with one year of MUS (Maintenance, Update, and Support Services.)

Monthly RENTAL:

- Unlimited usage for a period of one month
- One month kill date
- No limit on runs/executions of the calculator
- The one month rental includes Static and Dynamic analysis
- Additional increments of months may be discounted
- The one-month rental comes with one month of MUS (Maintenance, Update, and Support Services.) Note: additional increments of months may be discounted
- Monthly rental comes with the option to apply the first month rental towards the purchase price of a perpetual lease.

Purchase by the RUN:

- Purchased by the run (execution of the calculator)
- Does not charge a run for every time you enter the program
- TRIFLEX[®] does charge a run for each set of load cases that the calculator must perform
- The run license can be purchased in increments of 50, 100, 200, or 300 and comes with one year of MUS (Maintenance, Update, and Support Services.)

Static analysis:

Static analysis capabilities in TRIFLEX[®] include:

Extensive Spring Hanger Selection Capabilities

When a desired manufacturer of spring hangers is selected by the user, TRIFLEX[®] automatically processes the necessary analyses to determine the operating load and the installed position to operating position travel. TRIFLEX[®] then determines the spring hanger size and series required and gives the user two options to select from, if available. TRIFLEX[®] provides the user with the ability to easily display the deflections for multiple selected load cases for each spring hanger.

Wind Load Generation

TRIFLEX[®] provides the user with the ability to define wind loads as a function of wind speed, pressure or load per unit length of the pipe. Projected surfaces are automatically computed and reduced loads are therefore automatically calculated.

Equipment Loading Compliance Report

TRIFLEX[®] provides users the ability to model the piping and the equipment in one analysis and to have TRIFLEX[®] automatically generate nozzle and casing loading compliance reports for the following standards:

- NEMA SM/23 for Steam Turbines
- API Std. 617 for Centrifugal Compressors
- API Std. 610 for Centrifugal pumps
- ROT User Customized Reports with vendor allowable loads

Flange Leakage Calculations

TRIFLEX[®] provides users the ability to perform leakage calculations for any selected point in a piping system. The leakage calculations are based upon the ANSI B16.5 ratings and an equation from the ASME Section III Code that converts piping loads and internal pressures into equivalent pressures, which are then compared to the flange allowable pressures in accordance with the ANSI B16.5 Standard.

Nozzle Flexibilities and Stresses

TRIFLEX[®] provides users the ability to calculate nozzle flexibilities in accordance with the Welding Research Council (WRC) Bulletin 297 as well as entering flexibilities computed based on any other guideline. WERCO[™], the companion program to TRIFLEX[®], can easily be used to compute stresses in nozzle shells and the intersection point. WERCO[™] computes stresses based upon the rules set forth in the WRC 107 and WRC 297 Bulletins.

Fatigue Analysis and Cumulative Usage Report

TRIFLEX[®] provides users the ability to calculate the remaining life in a piping system based on material fatigue curve data from the ASME Section VIII, Division 1 Code and number of cycles entered by the user. The cumulative usage report provides a total usage factor taking into consideration all fatigue cases defined by the user.

Offshore Piping Analysis

Based upon the entered density of the surrounding seawater, TRIFLEX[®] automatically calculates the external hydrostatic pressure applied on the pipe. Further TRIFLEX[®] provides users the ability to enter the hydrodynamic effects of ocean waves and ocean currents on selected components in a piping system.

Dynamic analysis:

Dynamic analysis capabilities in TRIFLEX® include:

Mode Shape and Natural Frequency Generation

TRIFLEX® generates the mode shapes and natural frequencies for a piping system. TRIFLEX® enables users to view each mode shape graphically. Knowing the natural frequencies of the connected equipment and the piping system, a user can easily avoid most inherent piping vibration problems.

Response Spectrum Analysis

TRIFLEX® provides users with two methods to generate response spectra or the user may construct custom spectra for use in an analysis. With TRIFLEX®, a user can enter as many as three spectra to be applied to a piping system in one analysis. The results of such a spectral analysis can be stored in a load case and considered as occasional loads and stresses in a code compliance analysis. TRIFLEX® provides the ability to store, recall and edit specific spectral definitions as well as the ability to view each spectrum graphically.

Time History Analysis

TRIFLEX® provides users the ability to simulate the application of loadings on a piping system as a function of time and to view the resulting reaction of the piping system as a function of time. Employing the Time History method, TRIFLEX® provides users the ability to perform equipment imbalance studies, water hammer studies, steam hammer studies, relief valve release studies, transient flow studies as well as other time dependent studies. For non-branching piping systems subject to water hammer loading, TRIFLEX® calculates the forcing functions at significant piping system nodes along with the time of arrival at each node. This allows the user of TRIFLEX® to accurately simulate a water hammer event without requiring the use of any other software. Where more complex piping systems are being simulated for the effects of water hammer, time dependent load data can be generated using another program such as Pipenet Transient and the data can be imported directly by TRIFLEX® or the data can easily be entered manually using the user friendly data entry dialogs in TRIFLEX®. The effect of the time variant function on the displacement of the system may then be displayed graphically in an animation sequence. The imposed loading has an effect on the piping system displacements, forces, moments and stresses, which may be viewed on a spreadsheet at each time increment or in tabular form for all time increments for each point in the piping system. The maximum of these system effects can be added onto the occasional loading for one or more case definitions and specified as the occasional load for a piping code compliance report.

Animation of Time History Analysis Results

TRIFLEX® provides users the ability to generate mode shapes and natural frequencies for a piping system and display them graphically. TRIFLEX® also enables users to generate time dependent animations of a piping system showing the displacement as a function of time. This feature enables users to better understand the effects of the dynamic loadings on the piping system.

Load Case Combinations Available for Static and Dynamic Loads

TRIFLEX® provides users the ability to define any load case or combination of load cases as the primary, secondary or occasional component of a new load case. TRIFLEX® also enables users to combine any of these load cases using a variety of methods available in TRIFLEX®.

Please see our brochure for information about the program.

MUS (Maintenance, Updates, and Support) Services...

...As it applies to a Perpetual License

PipingSolutions, Inc. (PSI) will provide users with Maintenance, Update and Support Services for one full year after the product is purchased. After that year, the user has the option to continue with their MUS contract by purchasing MUS services. The price of these services is a function of what type of License and the features acquired. Please contact your distributor or PipingSolutions to discuss the price of this service. The following describes what is meant by Maintenance, Update and Support Services.

Maintenance PSI will make its best efforts to insure that the most recently delivered leased copies of the Software are free from errors ("Maintenance"). PSI will attempt to diagnose any errors actually found to exist. PSI will provide a work-around solution, will make such corrections in a timely manner and will supply such corrections in the next scheduled public release of the software.

Updates... "Updates" are alterations made to the Software to modify, improve or enhance a previously supplied copy of the Software and include additions made to the Software to comply with changes in industry standards or engineering codes. PSI may, at any time, create an updated copy of the Software to replace any leased copy previously supplied. However, PSI is obligated to provide updates only when the user has a paid-up a current MUS subscription for the software.

Support... Support is a service rendered for resolving coding or processing problems that may arise from the use of the Software. When provided for in the lease agreement or an MUS agreement, PSI, at no charge to the user, will provide reasonable technical support services to user through from PSI's offices or distributors during regular business hours, Monday through Friday, exclusive of holidays.