

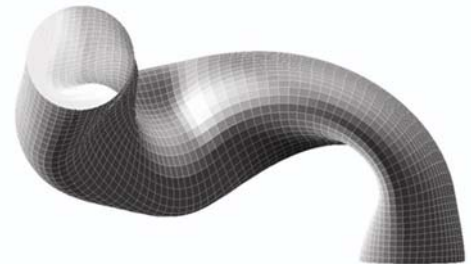
FESIF

When you need accurate B31 SIFs and Flexibilities



What is FESIF?

FESIF is a finite element based computer program that automatically calculates stress intensification factors (SIFs) and flexibility factors for a wide variety of piping intersections not covered by the B31 piping codes. There is a surprising number of common geometries (see below) not addressed by the B31 codes where the accuracy of the SIF is left entirely to the piping analyst, (ref. B31.3 Appendix D Note 12.) The flexibilities calculated by FESIF can be input directly into any pipe stress programs to reduce loads and produce more accurate stresses and displacements. SIFs from FESIF can also be directly input into any pipe stress program to calculate correct stresses for branch connections in hillsides, laterals, cones, and end caps. FESIF also produces SIFs for vessel and heat exchanger nozzles so that evaluation of these components can be included in the pipe stress analysis automatically.



Why should I use FESIF?

B31.3 states that for certain intersections, "selection of the appropriate SIF is the designer's responsibility." FESIF automatically produces these appropriate SIFs for geometries where the B31 Codes are not suited. An example, is unreinforced branch intersections where the d/D ratio is between 0.5 and 1.0. SIFs can be generated for both the run or the branch pipe eliminating obvious errors. (See WRC 329 Para. 4.4.) Results are easy to use with any pipe stress analysis program, and reports are inspector ready and include all graphs and tables.

Allowable external loads and the maximum allowable pressure are also calculated by FESIF. Pipe stress analysts can use these tables to evaluate piping loads on vessels or heat exchangers.

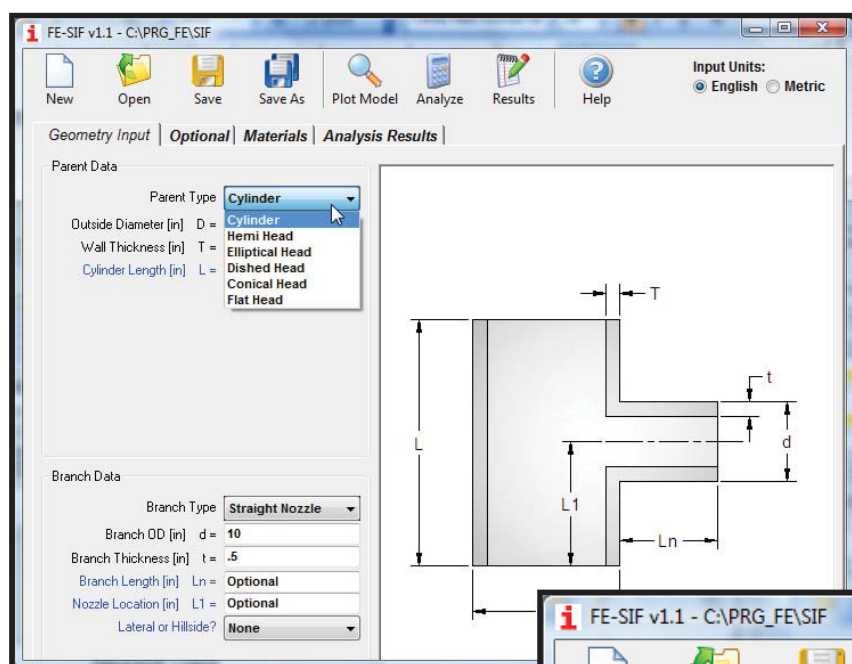
PRG recommends using FESIF when:

- $1.0 > d/D > 0.5$ for unreinforced for pad reinforced branch connections.
- Pad reinforced reducing branch connections
- Hillsides or laterals
- $D/T > 100$
- Area replacement rules for pressure are only barely satisfied and $D/T > 50$.
- Temperatures exceed 750F for ferritic steels and 850F for austenitic steels.
- The number of Thermal or Pressure cycles are greater than 5000.
- Design and operating conditions are approximately the same and stresses at the branch are $> 85\%$ of the allowable.
- Piping attached to the nozzle is long, flexible, and somewhat unrestrained and $D/T > 50$
- Branch connections are present in cones, spherical, flat, dished or elliptical heads.
- $d/D < 0.5$ for run SIFs

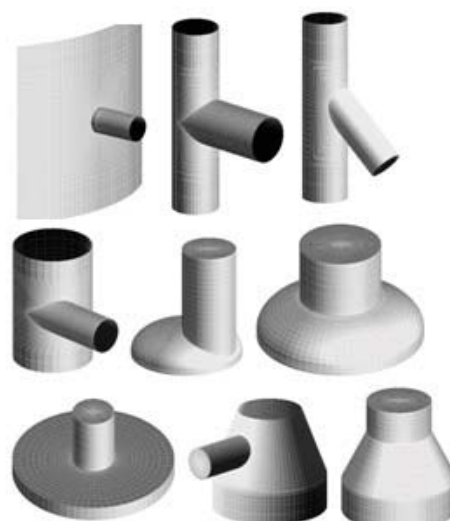


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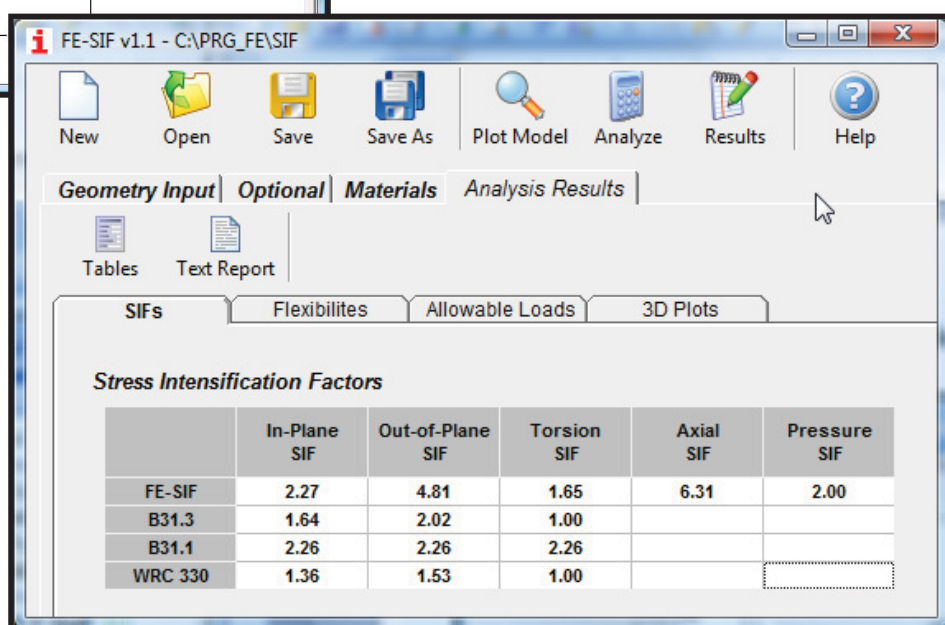
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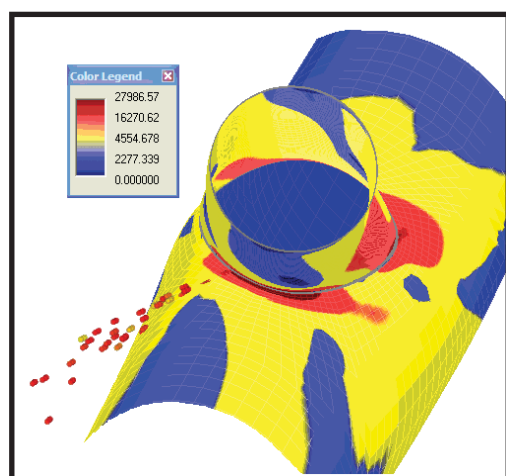
Fast and Easy Inputs



Available Geometries



Copy and Paste Results Into Your Piping Analysis Program



Animated Graphical Output

"New" B31.3 Piping CheckList

The PRG B31.3 Piping Checklist includes:

- Rules of Thumb
- B31.3 Code Notes
- Suggestions for Expert Analysis
- Risk Assessment
- Safety Factor Calculations
- General buried Pipe Stresses
- Critical Item Checklist

Basic version available as shareware.
Premier version available for purchase.

