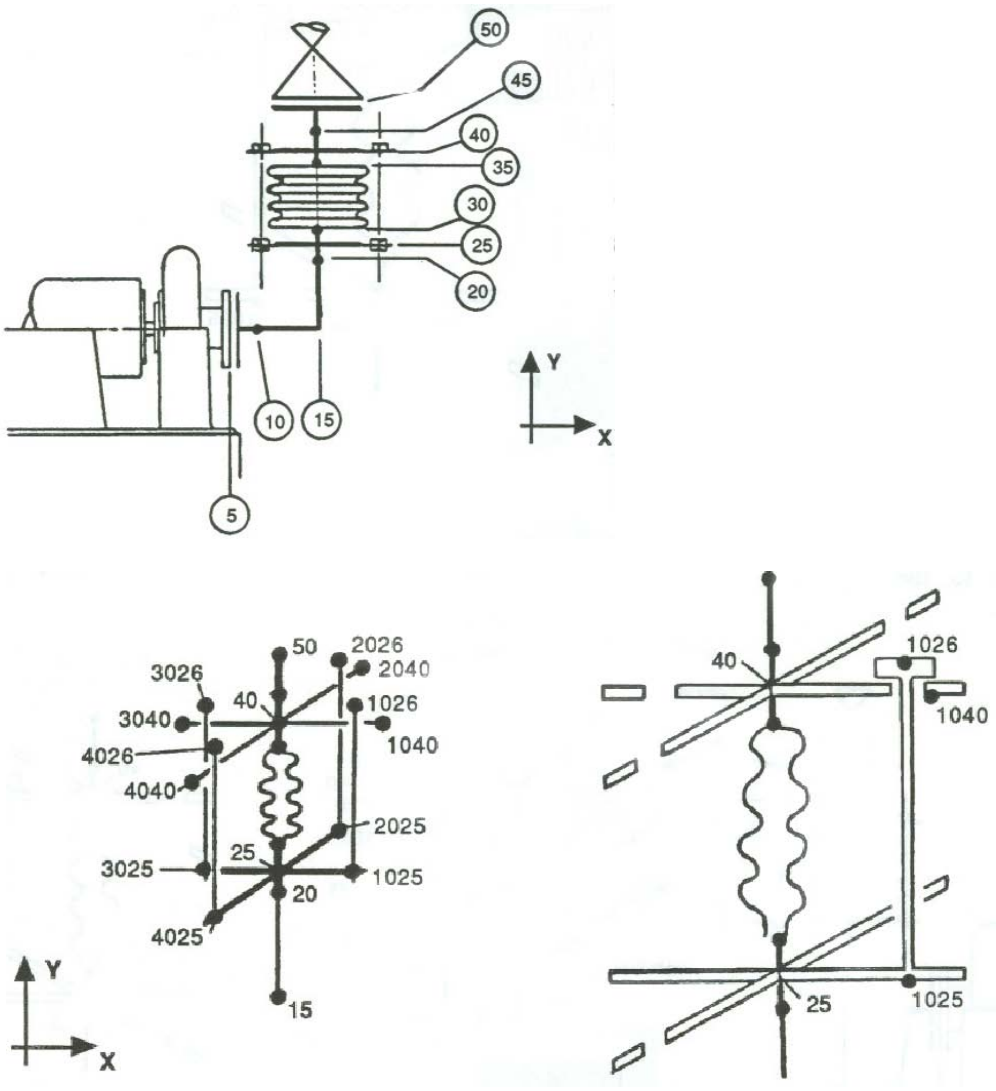
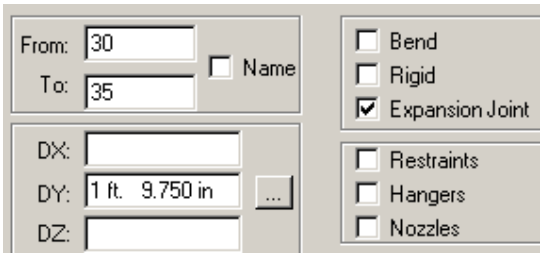
Tied Bellows Expansion Joint - Complex Model

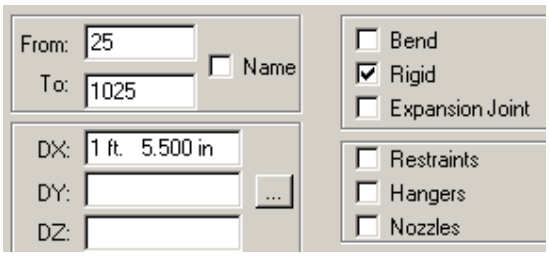
In the example shown below. the flexible joint is between the nodes 30 and 35. The flanged ends of the joint are modeled as the rigid elements 20 to 30 and 35 to 45. Additional rigid elements, perpendicular to the pipe axis, extend from each flange. The tie bars are 1inch in diameter. The following nodal layout and input is used to build a comprehensive model of the tied bellows.

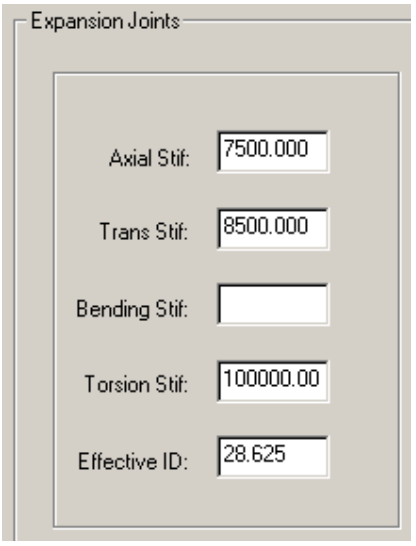
Tied Bellows Complex Model

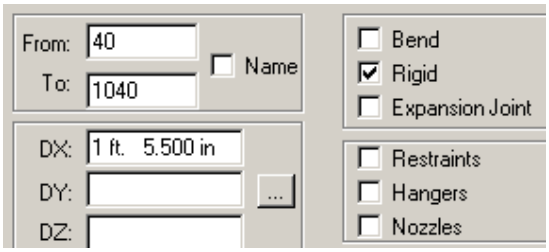


Tied Bellows Complex Model-Continued

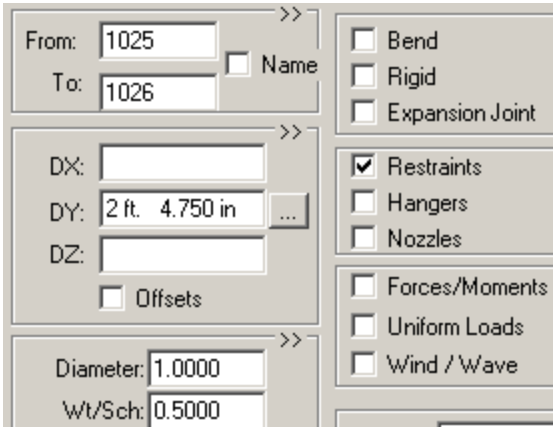


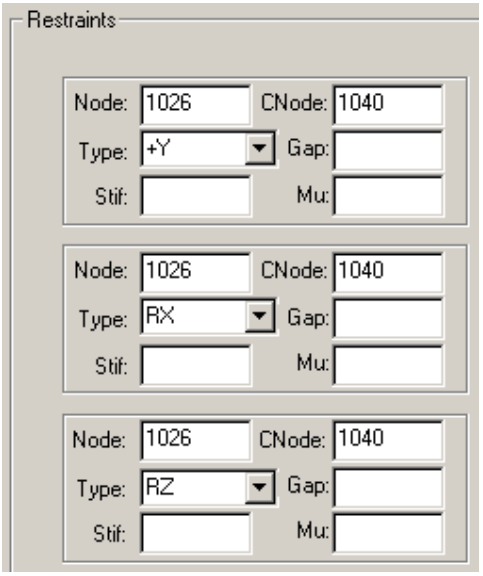






Weightless rigid elements extend from the flange centerline to the outside edge of the flanges where the tie rods are attached. Only 2 of eight element inputs shown.





Tie Rod will usually be at ambient temperature, but it is important to specify this correctly.