



DEFLECTION ON THERMAL EXPANSION
 CREATES HIGH TORSION ON NOZZLE

APPROACH

1) ASSUMED TORSION STIFFNESS AT NOZZLE SHOULD BE MORE WHEN USE TIED BELLOW IN LIEU OF UNTIED BELLOW.

2) USE $\{R_x=0, R_y=0, R_z=0, \theta=0\}$ -- Relative? IN THE ROD MODELING. TO GET MORE CONSERVATIVE NOZZLE

LOAD
 3) REDUCE PIPE DEFLECTION TO GET BETTER SYSTEM.

4) IDEA IS NOT TO USE BELLOW WITH MORE TORSIONAL LOAD, BUT TO CALCULATE MORE CONSERVATIVE TORSIONAL LOAD.

5) LIMITATION - IN THIS CASE BELLOW WILL SHOW ZERO ROTATION, WHICH IS NOT CORRECT.