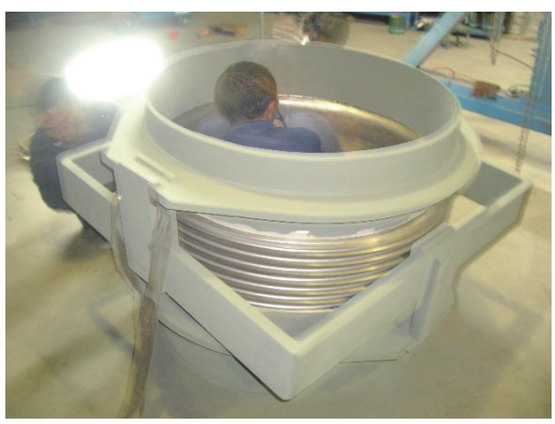
Gimble Expansion Joint

Gimbal expansion joint is designed to permit angular rotation in any plane by the use of two pairs of hinges affixed to common floating gimbal ring. This expansion joint can consist of a single bellow, where there is no lateral deflection, or two bellows connected by a common connector/pipe spool where it can permit a lateral deflection also. The gimbal ring, hinges and pins must be designed to restrain the pressure thrust loads and other external loads such as dead weight and wind

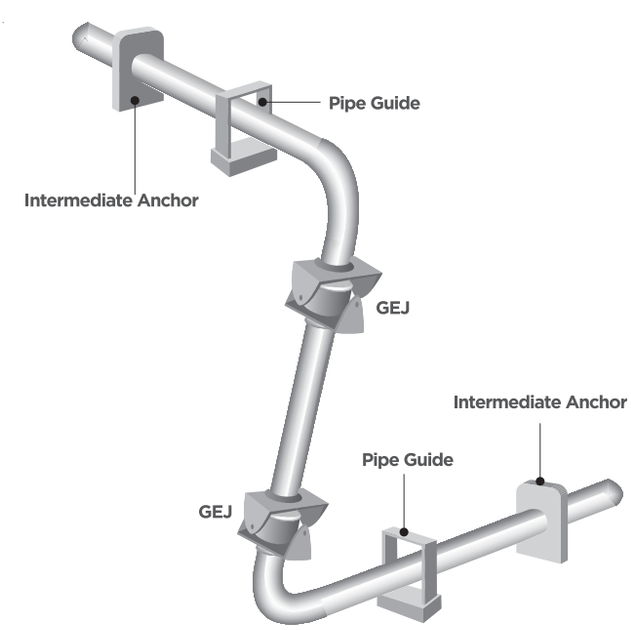
Features

- Permits angular movement in any plane
- Eliminates pressure thrust forces
- No main anchors required
- Transmits loads, so low forces on the pipe anchors
- Prevents torsion or twisting of the expansion joint.
- Internal flow liners for eliminating velocity problem
- Anchors only required to absorb spring forces



Typical gimbal systems consist of two gimbal expansion joints or two gimbal and one hinged expansion joint

As hinged expansion joints may offer great advantages in one plane applications, gimbal type offer similar advantages in multi-plane systems. The ability of gimbal expansion joint to absorb angular rotation in any plane is most frequently applied by utilizing two such units to absorb lateral deflection. In a two gimbal system, the thermal growth of vertical pipe leg must be absorbed by bending of long horizontal piping and gimbal units absorb the thermal expansion from the two horizontal piping legs. Typical application is shown below.



Where it is impossible or undesirable for the piping to absorb the growth of the offset leg, a system consisting of two gimbal and one hinged expansion joints are to be used as shown below. The gimbal expansion joints function in unison to absorb the combined movements of the upper and lower legs while the hinged expansion joint and the upper gimbal expansion joint act in combination to absorb deflection of the offset leg. Since the expansion of offset leg takes place in one plane only, the use of simpler hinged expansion joint is justified.