

ZERO SIDE LOAD BACK-UP..?

Innovative Technology Solves Age Old Problems...

Zero Side Load technology provides a solution to the destructive bending moment and shear forces created by a power tong during make-up. These forces are significant contributors to thread and seal galling in today's tubular connections.

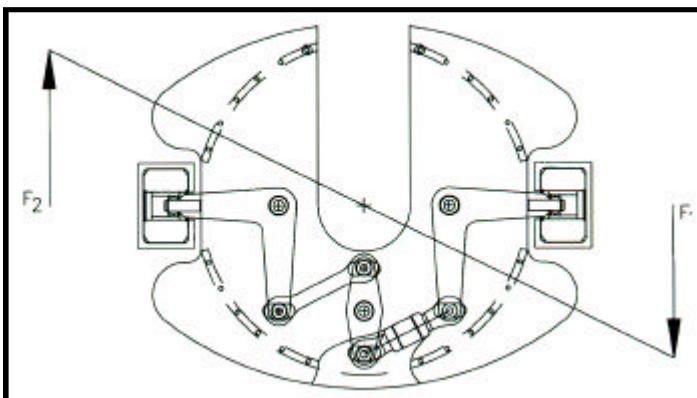
The **Zero Side Load** Integral Back-up is a "couple reactionary" device that eliminates the bending moment and shear forces in the connection.

These forces, created by the application of torque, are cancelled at the centerline of the pipe, effectively applying only "pure torque" to the connection. Problems such as alignment are handled through the unique "floating support" design of the back-up. Angular misalignment can be as much as 9 degrees without any effect on the loads applied or the accuracy of torque measurement.



Frank's Zero Side Load Integral Back-Up

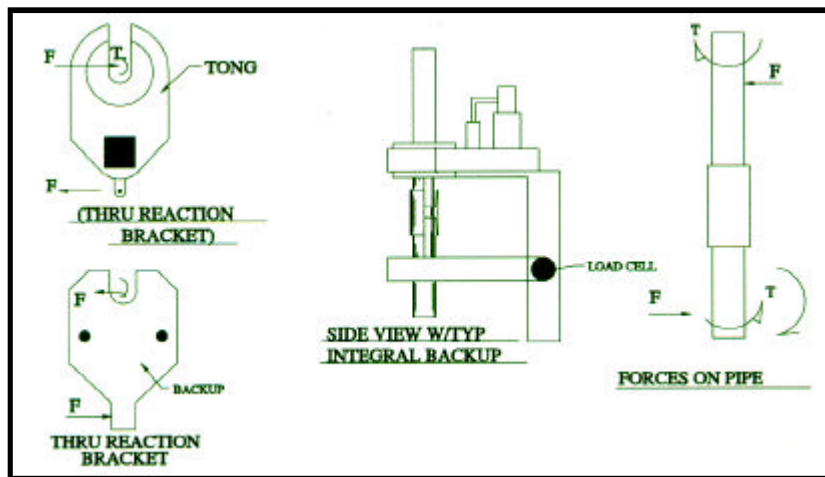
By placing the load cell in the reaction system linkage, the accuracy of torque measurement is increased by mechanically aligning the loads placed on the load cell.



Typical Integral Back-Up Configuration

Torque is applied via a "couple" (two equal but opposite forces at a fixed distance). In a standard tong configuration, the forces are transmitted through the load cell and snub line, and the opposite force is transmitted through the connection to the pipe body.

These resulting "side loads" are transmitted through the connection as a shear and bending moment. These externally induced loads cause high localized contact pressure between pin and box connections which rely on high interference in either the threads or metallic seals. This additional contact pressure during make-up can greatly increase the incidence of galling. The Zero Side Load Back-up solves these problems through the application of innovative technology.



Zero Side Load Reaction System