

Sealing...why we need gaskets.

IF it was possible to manufacture flanges to be perfectly smooth and polished, and **IF** it were possible to maintain these surfaces in permanent contact, then we simply wouldn't need gaskets. Unfortunately this is an impossibility which results from several factors:

- The size of the vessel and/or flanges.
- Difficulty in maintaining these surfaces while handling and installing.
- Corrosion or erosion of the surface over time.

To overcome these factors we use gaskets, which fill these surface imperfections and allow for reliable fluid sealing. In order to get the optimum sealing results from your gasket, these four factors must be considered:

- **Seating Stress:** You first must provide an adequate sealing pressure in order to seat the gasket so it can fill the imperfections of the flange without destroying the gasket or causing it to extrude. To this end the American Society of Mechanical Engineers, or ASME, has set a minimal initial seating stress guideline in their Pressure Vessel and Boiler Code.
- **Sealing Force:** You must ensure that the residual stress on the gasket after seating is adequate enough to make sure the gasket does not separate from the flange.
- **Material Selection:** You must make sure that the material you are using is rated for both the pressure it will be operating under and the fluids that are being contained by the seal.
- **Surface Finish:** There is a recommended surface finish for every style of gasket and every application. The leading cause of gasket leakage is the incorrect matching of a surface finish to an incompatible gasket material.

