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General Distribution

Re: Gasket Thickness Decisions

"Should I use 1/16" or 1/8" gaskets?" Sounds like a simple question, right? We wish it were.

Thicker gaskets will handle more flange irregularities, because they compress more (7-17% of .125" is a bigger compression value than 7-17% of .062"). If flanges are corroded or uneven, a thicker gasket might be needed. The better solution is to fix the flanges, but that's not always realistic. Why is thinner better?

Friction between the gasket and flange is the main factor in determining the pressure capability of the gasketed joint. Friction is a combination of the friction factor between the gasket and flanges surfaces, and the total bolt load. Since thin gaskets have lower creep relaxation, the joint will retain more bolt load. Thinner gaskets also present a smaller surface area to the pressure, which means there is less outward force on the gasket. So, less force outward and higher friction forces will translate to better blowout resistance!

All gaskets are permeable to some extent. Thinner gaskets present a smaller path for permeation. As long as the flanges are flat enough to handle the thin gaskets, there will be a tighter seal with the thin gasket. If the flanges are not flat, however, the thin gaskets might actually leak more!

There are (fortunately) some rules of thumb. Standard ANSI RF (raised face) flanges in as-new condition will typically handle 1/16" gaskets, up to 24" diameter. Many customers switch to 1/8" in larger diameters. Gaskets for FF (flat faced) flanges are often 1/8", since those flanges are often thinner and therefore less flat. Rubber gaskets for FF flanges will typically be 1/8" thick, again due to less rigid flanges. Thicker gaskets can be very successful; Garlock recommends higher installation torques when using thicker gaskets.

Want more? An even larger discussion (with calculations and everything!) is available from Applications Engineering.

Sincerely,

Dave Burgess
Applications Engineering
Industrial Gasketing

cc: J Heffron   M Tones
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