

## CRYOFLEX COMPRESSIVE STRENGTH

Cryoflex Insulation is a unique material specifically designed for industrial refrigeration applications. Cryoflex has a minimum compressive strength of 6 psi at 10 percent deformation, significantly lower than other insulation materials historically used in this application. But because it is *flexible*, Cryoflex has the added benefit of continuing to compress, rather than fracture when the load is increased. As Cryoflex compresses, the compressive strength of the insulation actually *increases*. While other insulation materials have *higher* compressive strengths, because they are *rigid* materials, they tend to fail *catastrophically*. Cryoflex compresses, but will not break.

The amount of compressive force exerted on the Cryoflex insulation is dependent upon the support spacing, pipe size and saddle length (bearing area). The typical minimum saddle length is 12” for up to 8” IPS and 18” for 10” IPS and larger. Acceptable maximum pipe spans for Cryoflex Insulation can be found in CF09 or the Cryoflex Installation Guidelines.

When spans exceed the maximum limits, the traditional approach has been to fabricate a pipe support insert using a higher density, higher compressive strength (and higher cost) rigid foam insulation. When insulating with Cryoflex, the recommended approach is to *use a longer pipe saddle*. This increases the load bearing area, distributing the compressive forces applied to the insulation. Increasing saddle length from 12 to 18 inches increases the bearing area by 50 percent, significantly increasing the maximum allowable pipe support spacing. Increasing saddle length from 18 to 24 inches provides a 33 percent increase in bearing area.

Besides providing a practical approach to minimizing compressive force on Cryoflex Insulation, this is also a very *cost effective* approach. An increased size pipe saddle will cost significantly less than a high density pipe support insert. It has the added benefit of using the same insulation material throughout the project, and there is no reduction in insulation value at the supports.

In summary, compressive strength of a material is not a true indicator of performance on a pipe. *Failure modes* play a critical role in determining maximum allowable compressive forces on an insulation material.

Please feel free to contact Nomaco Insulation with your pipe sizes and support spacing if you would like our recommendations for pipe support methods for your specific project conditions.