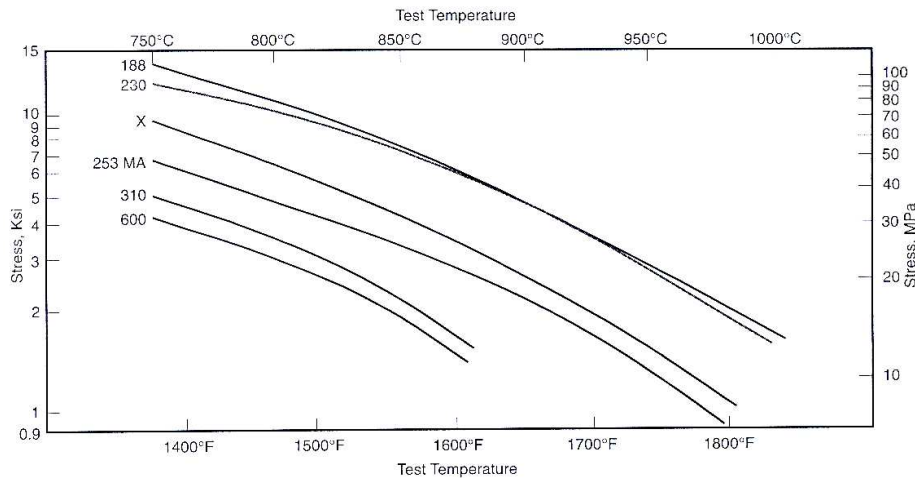


ULTRA HIGH TEMPERATURE ISOTHERMAL FURNACE LINERS

Inconel 600/601 has been the envelope material of choice since the introduction of high temperature IFLs nearly 30 years ago. Inconel 600/601 is a widely available high temperature material, which is compatible with Cesium, Potassium and Sodium and has adequate oxidation resistance and reasonable high temperature creep strength. ACT's Inconel/Sodium IFLs are rated to 1,100°C for up to 1,000 hours of operation (based on creep strength).

Experience gained from operating IFLs in a variety of applications, coupled with a growing desire to operate IFLs for longer than 1,000 hours at 1,100°C, has indicated a need for more robust, longer life IFLs specifically for use in the range of 1,000 to 1,100°C. ACT introduced a line of Haynes/Sodium IFLs that can meet this demanding application requirement. The stresses in typical IFLs are in the range of 0.3 to 0.6ksi at 1,100°C (depending on the diameter). The figure and table below show Haynes 230 has significantly greater creep resistance than Inconel 600/601. While life expectancy is dependent on each application, the data indicate that life expectancy improvements of 2:1 or better could be realized.

Comparison of Stress to Produce 1% Creep in 1000 Hours (Sheet)



Reprinted from Haynes 230 Product Brochure (www.hastelloy.com)

Stress-Rupture Life for Various Alloys at Fixed Test Conditions (based on Larson-Miller extrapolation, www.hastelloy.com)

Alloy	760°C / 15.0ksi	871°C / 4.5ksi	982°C / 2.0ksi
Haynes 230	8,200 hrs	65,000 hrs	5,000 hrs
Inconel 601	50 hrs	1,200 hrs	1,000 hrs
Inconel 600	15 hrs	280 hrs	580 hrs

ACT's UHT-IFLs are available in all the standard IFL sizes. Custom sizes are also available upon request.