Thermal Stress

$$\sigma_{th} = \frac{\alpha E}{2k(1-\nu)}\left[w_s t + 0.5 w_n t^2\right]$$

Material Related	Reactor Related

α = coefficient of thermal expansion

E = Modulus of Elasticity

k = thermal conductivity

ν = Poison Ratio

w_s = surface heat flux

w_n = nuclear heat rate

t = thickness

$$\text{Figure of Merit} = \frac{\sigma_{th}(T)}{\sigma_{y}(T)}$$

Compatibility Limits

Alloy	Coolant	Tmax °C
Al	Li	< 200
316 SS	Li	< 550
HT-9	Li	< 550
V	Li	< 800
Nb	Li	< 800
Mo	Li	< 1000
316 SS	Pb-Li	< 450
HT-9	Pb-Li	< 500
V	Pb-Li	????
Nb	Pb-Li	????
Mo	Pb-Li	????
316 SS/HT-9	Helium	< 600
V, Nb	Helium	< 600
Mo	Helium	< 1000