Heating graphite susceptor for glass reflow for X-ray tubes

Objective Heat graphite susceptor for glass reflow in the manufacturing of x-ray tubes

Material Glass disc 0.98 x 0.12 " (25 x 3mm), graphite susceptor, stainless steel holder, Glass bell jar 5.9" (150mm) OD

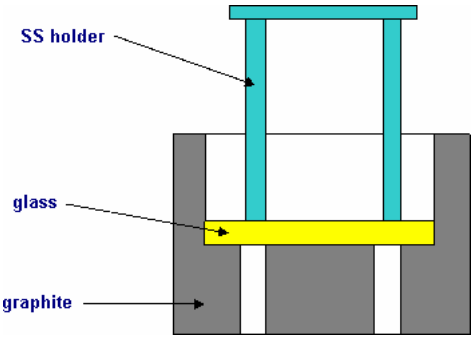
Temperature 1742 ºF (950º C)

Frequency 84 kHz

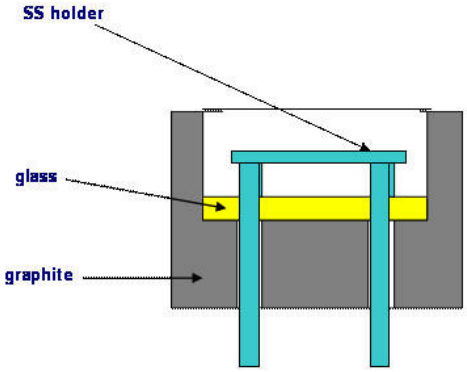
Equipment
- Ambrell 15 kW induction heating system, equipped with a remote workhead containing eight 0.3 µF capacitors for a total of 2.4 µF
- An induction heating coil designed and developed specifically for this application.

Process A two turn helical coil is used for heating. Six graphite susceptors are placed in the nitrogen atmosphere with glass discs and a stainless steel holder. In 32 seconds the required temperature of 1742 ºF (950º C) is reached causing the glass to reflow & the stainless steel holder to melt through the glass.

Results/Benefits Induction heating provides:
- Increased production, customer currently heating 4 susceptors
- 50% lower energy consummation
- Even distribution of heating



Susceptor with glass before heating



Susceptor after heating

Susceptors being heated in Nitrogen atmosphere

Placement of susceptors showing uniform heat pattern

Bottom of X-ray tube