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 consumption
• Even distribution of heating