



## Brazing vertical copper bars to a copper slip ring for refurbishing large motor assemblies

**Objective** Heating a copper slip ring for brazing 52 vertical copper bars for refurbishing 5MW motor assemblies

**Material** Copper slip ring 1.8" (45mm) thick, 2.8" (70mm) wide with a diameter of 27.5" (700mm), Copper vertical bars and silver copper braze

**Temperature** 1256 °F (680 °C)

**Frequency** 10 kHz

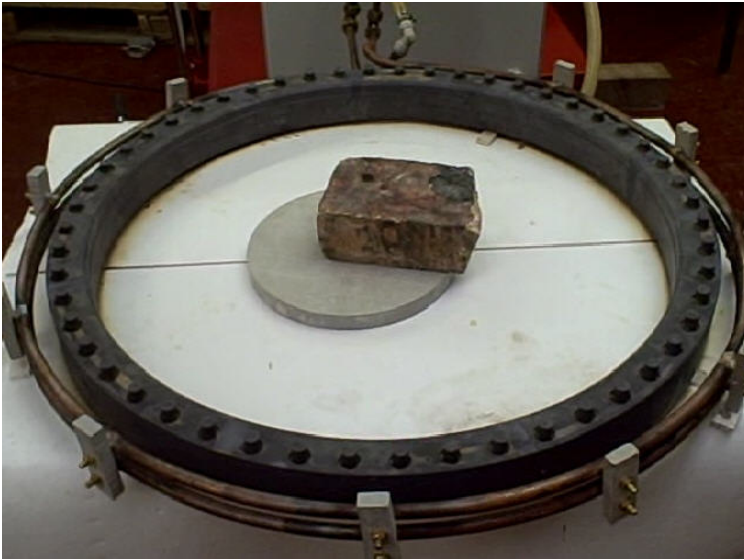
**Equipment**

- Ambrell 200 kW, 10 kHz induction heating system, equipped with a remote workhead containing two 30.47µF capacitors for a total of 60.95µF
- An induction heating coil, designed and developed specifically for this application.

**Process** A three turn helical coil is used to heat the slip ring. Power is applied for 25 minutes to bring the ring up to brazing temperature. The slip ring is then held at temperature as the self locating 52 vertical bars are brazed into place.

**Results/Benefits** Induction heating provides:

- Much faster process time compared to the current process of using gas to braze each joint individually
- Reduced energy cost
- Even distribution of heating



Slip ring and coil



Slip ring at temperature ready for  
brazing the vertical bars