

Shrink fit a carbon graphite ring insert into an outer steel band

Objective Heating a steel band to 1000 °F (538 °C) and inserting a carbon graphite ring in the center of the steel band

Material 4340 steel ring 8" (20.3cm) OD x 7.75" (19.7cm) ID, .895" (22.7mm) thick, carbon graphite ring insert

Temperature 1000 °F (538 °C)

Frequency 132 kHz

Equipment

- Ambrell 10 kW induction heating system, equipped with a remote workhead containing eight capacitors.
- An induction heating coil designed and developed specifically for this application.

Process A four turn, two over two helical coil is used for heating the steel ring. Power is applied for 14 seconds to reach the 1000 °F (538 °C), the carbon graphite ring is inserted and the assembly is allowed to cool creating a strong joint between the two pieces.

Results/Benefits Induction heating provides:

- A highly effective joint
- Accurate & repeatable heat
- Precise control of cycle times
- Uniform and repeatable results
- Hands-free heating that involves no operator skill for manufacturing

