

### Brazing steel orthodontic parts

**Objective** To heat a batch of orthodontic parts to 1300 °F (704 °C) within 1 second in an inert atmosphere for brazing.

**Material** Small stainless steel orthodontic parts, silver braze alloy, no flux, 3 1/ 8" (79.3mm) graphite susceptor disk with 1" (25.4) center hole and bell jar made of pyrex or quartz

**Temperature** 1300 °F (704 °C)

**Frequency** 165kHz

**Equipment** Ambrell 3kW induction heating system and 0.5 microfarad heat station

**Process** A four turn helical coil is used to heat parts. Brazing paste is applied to orthodontic parts with a syringe. The parts are placed on the graphite susceptor disk, which is placed on an insulating support in a quartz bell jar. After the jar is filled with inert gas, RF power is applied for 50 seconds at 165kHz to reach the required temperature, followed by a cool-down cycle.

**Results/Benefits** Induction heating provides:

- Fast, accurate, repeatable heat
- Ability to heat very small areas within precise production tolerances
- Better joint quality, reduced oxidation
- Increased production rates and reduced labor costs (100 parts are brazed in 50 seconds)

