



## Braze a carbide tip to a steel cutting tool

**Objective** Braze a carbide tip to a 4140 steel cutting tool

**Material** Carbide Isograde C2 & C5 tips, 4140 circular steel cutter, flux and silver braze shim

**Temperature** 1400 °F (760 °C)

**Frequency** 290 kHz

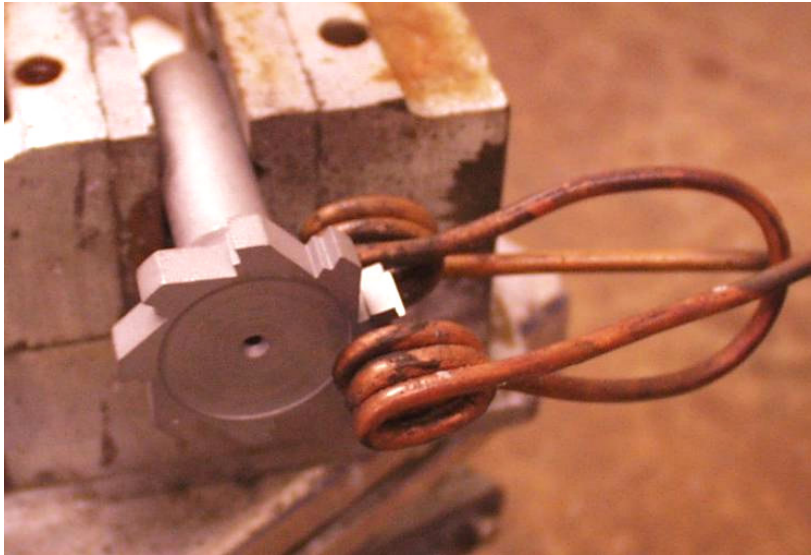
**Equipment**

- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.5 $\mu$ F capacitors for a total of 0.75 $\mu$ F
- An induction heating coil designed and developed specifically for this application.

**Process** A split helical coil is used to heat the carbide & circular steel cutter evenly for the brazing application. The circular steel cutter is placed in a vise and the carbide and braze shim are placed onto the tooth. The assembly is heated for 5 seconds to braze the carbide to the circular steel cutter. The circular steel cutter is rotated in the vise & each carbide tip is brazed separately without effecting the previous braze.

**Results/Benefits** Induction heating provides:

- Rapid, localized heat applied only to tip being brazed, will not effect previous brazes on the assembly
- Neat and clean joints
- Produces high quality repeatable parts



**Circular steel cutter in vise with carbide and braze positioned for brazing**