



Melting of Ni based alloy samples

Objective Superheating molten metal for different sample mass

Material Ni based alloy between 10 – 18g (0.35 – 0.63 ounce),

Temperature 2642 - 2912 °F (1450 – 1600 °C)

Frequency 268 kHz

Equipment

- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.5 μ F capacitors for a total of .75 μ F
- An induction heating coil designed and developed specifically for this application.

Process A single-position 9-turn helical coil is used to generate the required heating for the application. The 16 gram slug of steel is placed into the coil and supported with a ceramic rod. When the sample is melted the part changes shape to an inverted tear drop.

Narrative

- The customer is looking for repeatable superheating of the molten metal for different sample mass. They currently hold parts on a copper hearth with a central hole.

Results/Benefits Induction heating provides:

- Hands-free heating
- Involves no operator skill required for manufacturing
- Even distribution of heating
- Fast, controllable temperature ramp
- Consistent results.





Ni based sample prior to melting



Ni based sample being heated to melting point



Sample reaching melting point