



Melting aluminum in a graphite crucible for casting

Objective Heating a graphite crucible to 1292°F (700°C) to melt aluminum to liquid form for a casting application

Material 9.8" (250mm) OD, 22.4" (570mm) long, 0.7" (17.5mm) thick Graphite crucible, approx. 92.5lb (42kg) of aluminum

Temperature 1292 °F (700°C)

Frequency 8.3 kHz

Equipment

- Ambrell 50 kW induction heating system, equipped with a remote workhead containing two 26.9µF capacitors for a total of 53.8 µF.
- An induction heating coil designed and developed specifically for this application.

Process A ten turn helical coil is used to heat the graphite crucible to 1292°F (700°C) for 25 minutes to melt the aluminum to liquid form. Once the aluminum is melted it is then cast. No stirring is involved, molten sinks to bottom of crucible and aids in the melting process.

Benefits/Results Induction heating provides:

- Hands-free heating that involves no operator skill for manufacturing.
- Repeatable, dependable results.
- More efficient and cost effective than gas furnace, does not heat up the manufacturing area.
- Quicker process time which increases production.



Graphite crucible



Inside view of crucible



Helical coil used to heat crucible