Heating aluminium susceptor for powder expansion

Objective
Expand powder into solid form for use in crash helmets

Material
Microspheric powder
Aluminium chamber 110mm (4.3 in.) diameter x 35mm (1.3 in.) deep used to hold powder

Temperature
150 ºC (302 ºF)

Frequency
104.5 kHz

Process Time
120 seconds

Equipment
• Ambrell 5 kW induction heating system, equipped with a remote workhead containing (4) 2.6 µF capacitors (for a total of 2.6 µF).

• Two pancake coils 110mm (4.3 in) dia. with 45mm (1.8 in.) gap, in a headphone configuration designed and developed specifically for this application.

Process
The bottom of the susceptor chamber is sprayed with a release agent and microspheric powder is added to the chamber.

The chamber is heated for 120 seconds to reach 150º C (302º F) changing the powder into solid form. It is then allowed to air cool to 70º C (158º F) and removed from the chamber.

Results/Benefits
Induction heating:
• reduces cycle time for increased production
• energy efficient - only heating the part allowing small production runs
• is very flexible allowing a variety of molds to be used

Next page for photos