

## CASE STUDY



A 2012 Grand Prize Award Winner in the Electronic/Electrical category.

### Coil Housing

**Process:**  
Conventional powder metallurgy

**Secondary Processes:**  
Resin impregnation and zinc plating

**Density:**  
6.8–6.8 g/cm<sup>3</sup>

#### End Use and Function

This part is a soft magnetic powder metallurgy (PM) alloy coil housing used in a magnetic door closer for emergency/fire protection applications.

#### Fabrication

Formed as a single shape to a density of 6.8 to 6.9 g/cm<sup>3</sup>, the new PM design replaced a three-piece assembly. Critical design features include the locations of drafts, radii, and chamfers, as well as redefining tolerances for a near-net-shape part. Secondary operations include resin impregnation and zinc plating.

Extensive product design engineering was required to convert the three piece assembly into a single powder metallurgy friendly configuration.

#### Results

- The one-piece design provided a 21.5% cost savings over the previous assembly.
- Conversion of a three-piece component into a single piece
- Machining scrap reduced



PickPM is a resource created by the Metal Powder Industries Federation, a trade association for the metal powder industry, for the benefit of the metal powder industry. To learn more about powder metallurgy, or to find a part fabricator, visit us at [PickPM.com](http://PickPM.com)