

# Complexity Simplified

The automobile industry places a high emphasis on quality which makes it slow to change. It still follows the traditional manufacturing methods for fabricating many components. But as the designs of vehicles become more complex, the automotive industry is adapting Metal Injection Molding. Metal Injection Molding helps the automotive industry manufacture many components which are a pain to manufacture through machining and additionally save costs.

## Manufacturing Challenge

- **Earlier method :** Machining of gear & pin + welding
- **Reason for change :**
  - High cost savings in the project because of large volumes
  - Welded area fracturing on the application of torque in the anti-clockwise direction



Spur Gear

## Solution

- Entire component was produced through MIM with minor turning operations



## Engineering Challenge

- **Highly challenging design :**
  - Neck area fracturing in the prototyping stage
  - Manufacturing the gear area in tool
  - High aesthetic requirement

## Solution

- Iterations done in tool including a new slide guiding mechanism to prevent fracturing in neck area
- Zinc blue plating done on component to create aesthetically appealing finish and prevent corrosion

## Newsletter Spotlight

*The part won the 2014 MPIF "Award of Distinction" in the "Automotive" category*

*Indo-MIM created estimated cost savings of 30% over the previous manufacturing method*

*Indo-MIM delivers 720,000 pieces to the customer annually*

*Outstanding example of MIM's ability to meet close tolerances on concentricity and perpendicularity, on a part with lengthy gear profile*

*Material used was MIM 4605 low alloy steel with hardness of 100 HRB*

## Indo-MIM Receiving MPIF Award For The Component



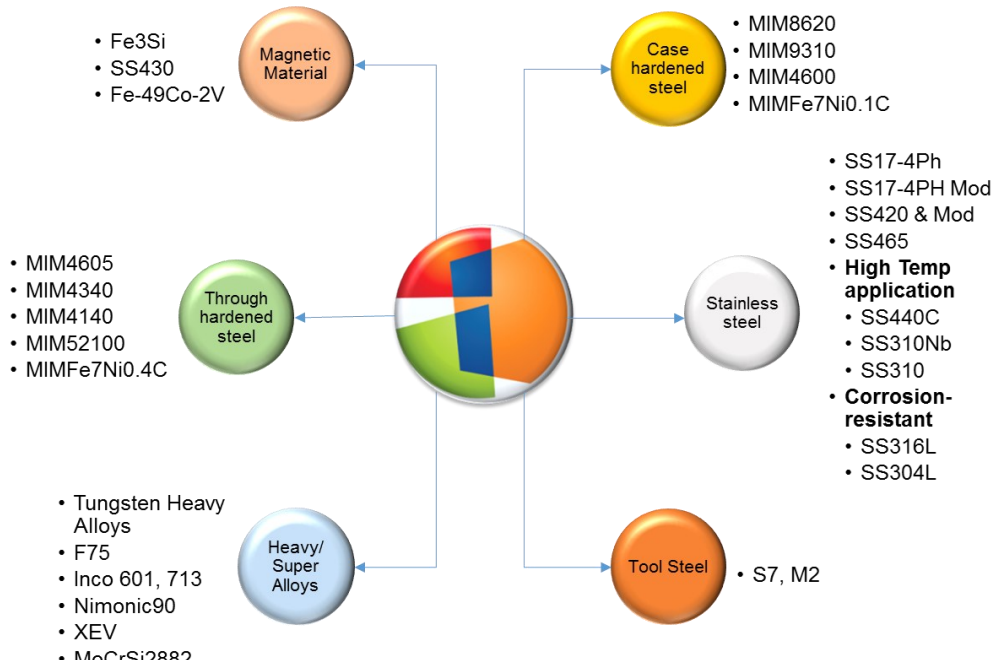
MPIF President Richard Pfingstler presented the 2014 MPIF "Award of Distinction" to Mr. Param from Sales & Marketing, Mr. Ravi from Tool Room and Mr. Fujiwara (Japan Sales Representative), at Orlando, Florida

## Indo-MIM Advantages

Indo-MIM reduced the manufacturing cost of the component by 30% over the previous method. No industrial pollutants were released during the manufacturing process.

Indo-MIM's specialty lies in manufacturing highly complex parts. Mechanical properties of parts produced through MIM are superior to castings & powder metallurgy (reflecting fine particle size & high sintered density). Parts made through MIM are near net shape.

## Materials We Offer



Questions or comments - Write to us at [innovation@indo-mim.com](mailto:innovation@indo-mim.com) or call at +91 80 2204 8800/2797 1419

Visit us at <http://www.indo-mim.com/>

