

# Green Manufacturing

## Manufacturing Challenge

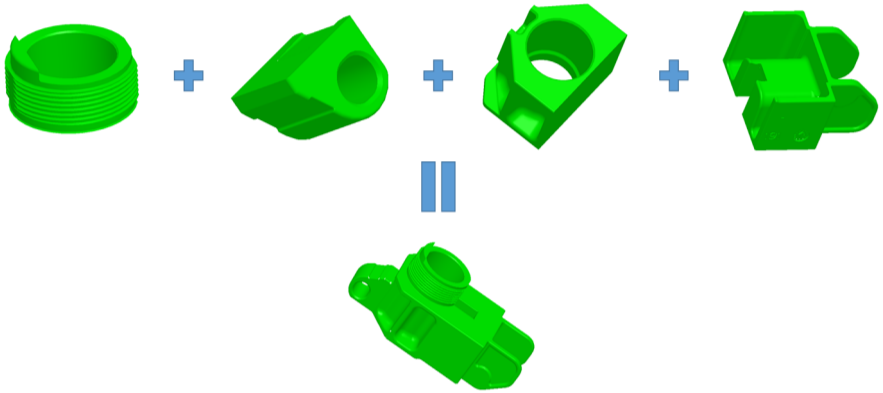
The component was made earlier by welding together four machined parts. The disadvantage of this method of manufacturing was that welded joints were weak and prone to fracture. Welded joints are weak on aesthetics as well. Machining also leads to high lead times and costs. This also made it difficult to manufacture large volumes. Indo-MIM replaced the four separate processes through Metal Injected Molding. The component was formed near-net shape and machining was reduced considerably.

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Component

## Earlier Method Of Manufacturing



## Advantages Of New Method

MIM is a green manufacturing method with minimal wastage of material. In comparison with machining, the material savings were around 30%. An additional 10% of material was saved through coring. The four separate processes were reduced into a single process, reducing lead time and cost in the process. MIM also achieved a good surface finish of 1.2 microns Ra. Manufacturing the component through MIM increased its visual appeal.

## Newsletter Spotlight

*Indo-MIM reduced the chances of component failure by removing welding from the manufacturing process*

*Four separate machining process were replaced with one process (MIM)*

*Indo-MIM created cost savings of 40% over the previous method by significantly reducing machining process*

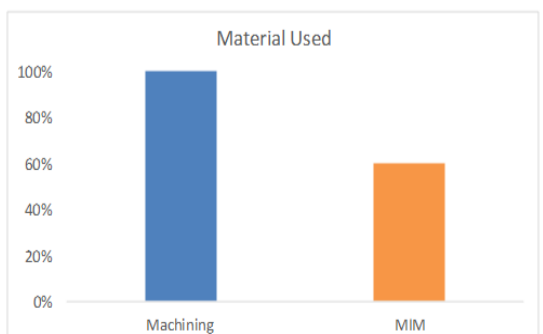
*Indo-MIM delivers forty thousand pieces annually to the customer*

## Indo-MIM Advantages

Indo-MIM reduced the manufacturing cost of the component by 40% over the previous method. Indo-MIM's specialty lies in manufacturing highly complex parts. Mechanical properties of parts produced through MIM is superior to castings & powder metallurgy (reflecting fine particle size & high sintered density).

### Wide range of alloys available:

- \* Case Hardened Steels
- \* Hardened & Tempered Steels
- \* Stainless Steels
- \* Tool Steels
- \* Magnetic Materials
- \* Tungsten Heavy Alloys
- \* Titanium & Titanium Alloys



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

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