

# INVESTMENT CASTING

## PRECISION REDEFINED



### **Take a close look at what we have to offer in investment castings at Indo-MIM**

Indo-MIM manufactures & supplies high quality precision investment castings in a wide range of materials such as Steel, Nickel and Cobalt base for industrial and aerospace applications. We are consolidating on a leadership position with commercial casting and working towards to become a major player in vacuum castings in Titanium and Super alloys.

# INVESTMENT CASTING

## Established in 2009

We have a state-of-the-art 30,000 square feet manufacturing facility in Tirupati, India. This is a 5-acre industrial park with easy access to key nodal cities such as Chennai and Bangalore. This plant is certified with ISO 9001:2015, IATF 16949:2016, AS 9100:2016, ISO 14001:2015 and OSHAS 18001:2007 system requirements.

Indo-MIM provides customers with customized end-to-end solutions, enabling a direct passage for parts or assemblies into manufacturing processes.

## Core Capabilities

- Capability to produce annual volumes from less than 1K to 100K of highly complex shaped parts
- Part spectrum extending from 10gms to 15 kg
- Flexible part size options - lengths up to 400 mm and thickness from 1 mm to 75 mm
- Short product development cycle - comparable with the best in the industry
- Castings in a wide range of air-melt alloys - including carbon and low alloy steels, 300 & 400 series SS, precipitation hardening stainless steels, nickel and cobalt based alloys in an integrated manufacturing environment
- In-house mold and casting process design
- Modern Mold Manufacturing CNC Machining centers, EDM and Spark Erosion machines
- Primary and secondary production facilities from world class suppliers
- Inspection, testing and measurement capabilities based on global equipment inputs
- Engineers, Metallurgists and skilled technicians with a combined experience of over 10+ years in the field

## Our Investment Casting Process

### Wax Room

- Wax injection molds are design and manufactured under controlled conditions
- Wax Injection patterns, wax runners and gating are molded in temperature / humidity control environments
- Wax patterns are inspected and assembled onto a wax runner to form wax trees
- Wax Patterns with 12T to 25T presses from MPI & CTM, USA
- Wax Runner trees are molded on 35T press from Modtec India
- Processes use quality waxes sourced from USA



## Shell Molds

- Wax trees are cleaned and etched in a temperature & humidity controlled shell room
- A Prime Zircon coat is applied onto the wax trees after slurry dipping, followed by applying dry stucco treatment drying
- Multiple back up fused silica coats applied to wax trees using a robotic shell system to achieve necessary strength for ceramic molds
- All ceramic shells are dried under controlled atmosphere conditions

## Casting & Cleaning

- Wax content in shell molds is melted using superheated steam in an autoclave
- De-waxed molds are preheated to enable and ensure complete removal of wax
- Molten metal in induction furnace is poured into the pre-heated shell molds
- Ceramic shells are removed from metal molds using pneumatic knock out, shot blasting and grit blasting machines
- Final finishing on castings done with abrasive wheel cut off operations and precise gate grinding to remove extended projected gates

## Finished Parts

- All castings are inspected for dimensional and metallurgical qualities
- All castings are further heat-treated to enhance mechanical properties
- Finish machining processes are done to customer specifications
- Surface finishing treatments also applied to castings to make them ready to use

For proven, expert, cost-effective MIM solutions, delivered with strict adherence to deadlines, do contact us at [www.indo-mim.com](http://www.indo-mim.com)

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