

Compounding / Feedstock



Original Binder

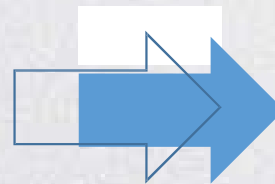
Fine metal powder less than 20μ particle size is blended with thermoplastic and wax binders in precise amounts.

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Metal Powder

The metal powder to binder ratio is approximately 80:20 by volume



Injection Molding

The pelletized feedstock is fed into an injection molding machine, then the tooling can be of multiple cavities for high production rates. The mold cavity is sized approximately 20% larger to compensate for shrinkage that takes place during sintering. The shrinkage change is precisely known for each material.



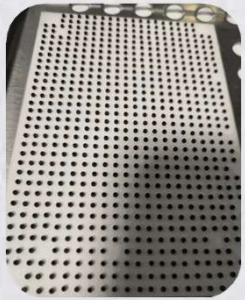
injection molding machine



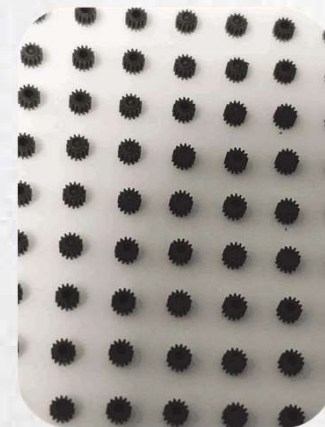
Debinding

Debinding

After the Injection Molding, the molded part will move to the next step called Debinding or binder removal process. Binder removal is a process where the binder materials are removed from the molded MIM component.



Debinding machine



Sintering Process

The debound parts are placed on ceramic setters which are loaded into a high temperature, atmosphere controlled sintering furnace. The brown parts are slowly heated in a protective atmosphere to drive out the remaining binders. Once the binders are evaporated, the metal part is heated to high temperature where the void space between the particles is eliminated as the particles fuse together. The part shrinks isotropically to its design dimensions and transforms into a dense solid. The sintered part density is typically greater than 97% of theoretical for most materials. The high sintered part density gives the product properties that are similar to wrought materials.

Sintering machine



Secondary Processes



After sintering

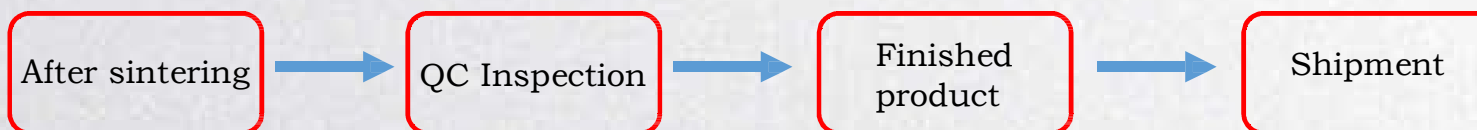


Machining: Re-shape、Tapping

Heat treatment: carburizing、quenching、anneal.

Tumbling、sand blasting、polishing

Solid brass: Spray painted、nickel-plating、ED、PVD、hairline finish



Profile projector

the influence measurement system is adopted to achieve the accuracy of inspection.

Full inspection of mass production

For the client part of the key size need to ensure, our company will take 100% CCD detection or fixture full inspection.