

## METAL INJECTION MOULDING

In **Gestión de Compras** we have the necessary means to produce parts made by metal injection moulding with a huge variety of materials and shapes.

### PROCESS:

Metal injection moulding (MIM) produces solid metal parts using injection moulding technology. This process involves four steps:

- **Feedstock preparation:** Primary raw for this process is a mixture of metal and a thermoplastic binder. The mixture is heated up, mixed, cooled and granulated to obtain homogeneous feedstock.
- **Injection moulding:** the feedstock is melted and injected into the mould cavity, where it cools and solidifies into the shape of the part. Getting the "green part". For this step can be used the same equipment and tools that for plastic moulding.
- **Binder removal:** This step consists on remove most of binder the green part either by a solvent debiding or a thermal debiding or both of them. Once debinding is complete, the component is referred to as "brown part".
- **Sintering:** At this stage the brown part is sintered at a temperature close to 85% metal's melting point. Obtaining a high density with the resultant reduction of volume (nearly 20%).

Through this method small and intricate parts (usually up to 100 grams) are produced. A high production volume is necessary to do cost-effective this process. Materials used in this process are practically the same of conventional powder metallurgy. Are specially used metals with high melting points such as titanium alloys, steels and even super-alloys.

Metal injection moulding presents several advantages respect to conventional powder metallurgy process:

- Better properties: is possible obtain porosities about 2% obtaining by this method higher mechanical strength, lower corrosion and magnetic properties improved.
- It provides flexibility in the design similar to plastic injection molding.
- Possibility to produce more details.

## **PRODUCTION:**

In **Gestión de Compras** we have the necessary means to produce parts made by metal injection moulding with a huge variety of materials and shapes. Ours factories are full equipped to produce parts from preparation of the feedstock with the desired materials to sintering and finish operation required. Its possible manufacture directly by a draw or a CAD archive.

Below some pictures of our supplier companies:



## **MATERIALS AND PRODUCTS:**

We work with a wide range of material such as:

- Carbon Steel.
- Cast Iron.
- Stainless Steel.
- Copper.
- Nickel.
- Titanium.
- Alloy Steel.
- Superalloys.

We work producing parts to industries such as:

- Medical and orthodontic (Scalpels, surgical tools, ...)
- Automotive (Lock mechanisms, airbag sensors...)
- Electronics (Sensors)
- Aerospace (Rocket components, fuel pump, turbines, ...)
- Firearms.
- Costumer products (watch cases, eyewear components, etc)



## TOLERANCES:

Dimensional tolerance are adjusted to customer needs. If there are no special requirements, we work with a typical tolerance  $\pm 0.5\%$  and can reach precision levels of 0.3%. This tolerances depend on part dimensions, material, part shape, and process requirements.

## STANDARD AND CERTIFICATES:

**Gestión de Compras** only works with companies that can provide us warranties, which are holders of all necessary quality certificates and work according to all specific industry standards such as:

- ISO 9001 and ISO 14001
- ISO 22068 Sintered-metal injection-moulded materials
- EN 9100 – Aerospace industry
- ISO 13485 – Medical industry
- TR 16949 – Automotive industry.
- ISO 8062, ISO 286-2, DIN 2768, etc - Tolerances
- OHSAS 18001 - Safety and health standard.

## **CONTACT:**

In **Gestión de Compras** work with a wide range of customers from different sectors but have in common the search for products that suit your needs at the best Price and the guaranteed maximum quality. Check with us about any product. We have a qualified staff who will advise you.

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