

Harber Metal Surgical tools

Surgical tools require high strength, low blood contamination and erosive disinfection etc.. The design flexibility of MIM technology can meet most surgical tools requirements. It also has technological advantages and can produce various metal products at low cost. It is gradually replacing the traditional production technology and has become the main manufacturing method.



Harber Metal has developed a stainless steel claw by MIM. It is made of 17-4PH stainless steel and the density is higher than 7.5g/cm³. It can be used to grasp objects in human body during operation and has tweezers function. Its design is quite complex and requires high production accuracy.



After forming by MIM technology and sintering, it can achieve very precise tolerance, and do not need a lot of follow-up processes, so as to avoid destroying the linear and geometrical shape of the claw.

It is difficult to produce this kind of stainless steel claw with complex shape by casting or machining. It requires a long production cycle and high cost. Using MIM technology can save 60% of the cost.

One-off surgical tools need to develop a low-cost but batch production process. Smith Metal Products Corporation uses MIM to produce a kind of shaft assembly applied for a new type of disposable surgical instruments. The cost is only 1/4-1/5 of that processed by Swiss CNC machine tools. The density is 7.5 g/cm³, and the ultimate tensile strength is 7.5 g/cm³. Strength is 1190 MPa and yield strength is 1090 MPa, elongation is 6.0%, and maximum hardness is 33 HRC.

The manufacturing process of this product is as follows: firstly, two 178mm long axle parts are formed by MIM, then two parts are welded by laser. The subsequent machining and heat treatment are carried out then. In order to meet the requirements of better tolerance, shot peening and passivation are also needed.

Harbermetal is a professional manufacturer and solution provider of metal powder injection molding process (MIM) and PM process. We provide our customers with high volume structural, functional and appearance parts of various materials with high precision, complex shapes, good

performance and exquisite appearance, and we have the ability to develop ceramic and titanium alloy materials to meet the needs of different types of customers. The company mainly provides all kinds of precise and complex hardware structure parts and components to worldwide enterprises in the fields of 3C consumer electronics, new energy, drones, medical devices, automobiles, aerospace, civil consumer goods etc.

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