

Metal Injection Molding Technical Newsletter

World Finest MIM Technology of Japan, "μ-MIM®"

Volume 2

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1. Injection molding of titanium

You will be delighted by the wide range of materials you can use our micro MIM technique with, and by the high dimensional accuracy!

Because titanium and titanium alloys have high specific strengths and resistance to corrosion, they are used in aircraft membranes, medical instruments and chemical plants. In recent times inquiries for titanium and titanium alloys have increased, although it is difficult to produce parts from these materials using conventional metal injection molding. We have heard from customers that they are planning to adopt metal injection molding instead of machining for machine parts requiring complex geometry and high dimensional accuracy, in order to save costs.



▲ MIM parts made from titanium

The photograph above shows titanium parts manufactured by TAISEI KOGYO using the metal injection molding technique. No other manufacturer could manufacture these parts, because high precision is required for the holes. We are able to manufacture parts from titanium and titanium alloys with high dimensional accuracy using metal injection molding. Both precision parts measuring less than 1mm and larger parts measuring over 30mm are available.

TAISEI KOGYO is aiming to be the world's number one company for high precision metal injection molding. Please inquire about the use of MIM for parts that have been very difficult to manufacture with conventional metal injection molding.

2. How to realize micro MIM

Injection molding with high precise molds

For high precision metal injection molding, mold design is very important. Dimensional accuracy of the matching faces of the disassembled mold is indispensable, and there are many other essential techniques as well.

Mold design has a significant influence on the quality of products. For example, we have to be careful about the positioning of the mold's gates. With MIM, the material flow is more sensitive to the flow line than with plastic injection moldings. Because metal powder is heavy, the inertia of the material flow is a factor that cannot be ignored.

If the material is injected into the mold at a high flow rate, the metal powder will not be distributed homogeneously due to the difference in inertia between the metal powder and the binder resin. This phenomenon may cause problems after sintering, such as cracking.



▲ Mold for micro MIM

The photo above shows a mold for micro MIM. Errors in gate positioning may have an essential impact on quality and the yield of the material, and may also increase manufacturing costs. With precise simulation techniques and a wealth of experience with MIM molding, we are able to successfully optimize the mold design. That is why TAISEI KOGYO has adopted the high technology called micro MIM.

3. Report on the MIM technical seminar

TAISEI KOGYO held a MIM technical seminar for its customers in Osaka. The seminar was free of charge and the lecture topics included the design of the metal injection molding process, examples of cost savings through MIM, the development of new materials etc.

The participants told us that the seminar had helped them to understand metal injection molding and the possibility of manufacturing their parts by this process. They also said that they had identified some parts where they expected to save costs by using metal injection molding.



▲ Scenes from the MIM technical seminar

In the seminar, our engineers devoted a lot of time to questions and answers. We hope that many of the participants were well satisfied with the seminar. We are intending to arrange a further seminar for customers, in order to communicate new information about cost savings.

4. Schedule of exhibition

Schedule Of conference and exhibition

Salon EPHJ-EPMT-SMT in Geneva

on 14-17 June 2016

at Palexpo in Geneva.

Stand No: L101



Say hello from Taisei staff.



Izumi Nakamura with children in Laos

How do you do? My name is Izumi Nakamura. I joined TAISEI KOGYO 2 years ago and am responsible for business development. Since my student days I have had a lot of experience of living in foreign countries such as Sweden, Norway, Australia, and Germany. I stayed in Laos for many years, working at an NPO (non-profit organization) in the fields of education and economic development. From this experience I learned that it is necessary to promote manufacturing industry in the country in order to bring about economic development. That's why I decided to enter the world of MIM..