Metal Injection Molding Technical Newsletter

World's Finest MIM Technology from Japan "μ-MIM®

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1.The reason why μ-MIM is chosen

(continue from vol.19)

③"Only one" production technology solves your technical issues

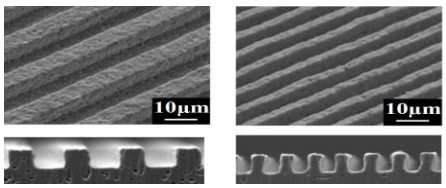
What Taisei Kogyo is aiming are to create overwhelming difference in the aspect of MIM technology which "only Taisei Kogyo can do", and production exerting a mobility of a small factory close to the users. Until now, Taisei Kogyo has always developed technologies searching the needs in next generation from the issues brought by our customers. Besides the research and development activity at our R&D bases in Japan and in Thailand, we are often participating in academic conferences in industry in order to know where we stand technologically as well as to see the advancement of other companies or research institutes.

2. Leave us thin-walled parts!

Manufacturing thin-walled part is influenced by thermal and mechanical deformation in any technology. Often chucking and positioning are difficult, and manufacturing with required tolerance is challenging. However, demand for thin-walled parts is increasing from all industries due to the increased needs of miniaturization and lightweight products. Even in MIM (Metal Injection Moulding), secondary process is often necessary with thin-walled parts. In some cases, filling part into the mold itself is difficult. Considering features of MIM, Taisei Kogyo thought that adaptation to thin and micro shape is necessary. For a long time they have promoted R&D with thin-walled parts as an important theme using its μ-MIM.

With normal MIM, it is hard to manufacture even parts that contain 0.5 mm thickness and some thickness a few times more than that in a component. One of the factors is due to the flowability of the metal material. Even in plastic injection molding, thin-walled shape is difficult, but material of MIM are lower in flowability than the plastic. Furthermore, MIM material contain a large amount of metal powder, making thermal conductivity high. Due to the cooling from the mold, flowability further declines at the filling stage, resulting in more difficulty in injection molding. Because of such material properties, MIM requires advanced mold design and know-how in molding condition setting.

Since its founding, they have cultivated know-how in injection molding and introduced optimum mold design using simulation adapted to MIM. From the collection of these know-how, they have also realised μ-MIM parts with thickness of less than 0.1 mm at the thinnest part as shown in the picture and a wall thickness of less than 0.2 mm. at all locations.



SEM images

3. Consult with us for post-MIM processing

We provide services such as surface treatment and secondary processing for MIM parts.

Taisei Kogyo realizes not only the accuracy of tolerance required for each MIM part, but also offers optimized surface treatment and/or secondary process.

We sometimes see our customers spending significant period of time in finding suppliers who can realize such process because they are not accustomed to handling powder metallurgy parts. In fact, we are getting an increasing number of requests for MIM-related post-process, surface treatment and/or assembly work. We can provide MIM parts optimized to the

customers' specifications, including post-processing arrangements.

Mirror polished MIM part.

Taisei Column

Fragrance Jewelry

Hello Everyone.

This is the second appearance on this newsletter for me, Sumiyo Morita. I love good scents and am careful to check that everything smells nice because a bad smell will have a negative effect on other people. Taisei Kogyo markets goods which help to control scents: "fragrant metals"!

We can use these as personal belongings that we keep near us, on straps or attached to walls. I attach fragrant metals to my bracelets and charms, etc. These items are great for making our favorite fragrances faintly waft around us. You are very welcome to contact us if you are interested in these items.

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Published by : TAISEI KOGYO CO., LTD.
TEL: +49-781-6301-4281 +49-162-6967837 URL: http://www.taisei-kogyo.com/en
Contact Email: izumi_nakamura@taisei-kogyo-net.co.jp

Head Office
26-1 Ikedakitamachi, Neyagawa, Osaka 572-0073 Japan

European Representative Office
In der Spöck 12(im TPO), 77656 Offenburg, Germany