Metal Injection Moulding in high-precision manufacturing

Create the Future of Highly Functional Metal Components
**What is “μ-MIM”?** Smaller and more precise

Taisei Kogyo is the leading MIM manufacturer in Japan. Our MIM process is suitable for mass production of sophisticated profile components with tighter dimensional tolerances compared with conventional MIM. We have established a manufacturing process for extremely small metal parts called “μ-MIM”. It is possible to design metal components with less than 0.2 mm thickness.

**Process**

Our development leads simple process

MIM is a manufacturing process, which includes injection moulding and sintering. For injection moulding, the mixture of metal powder and polymer binder, called feedstock is used. MIM components have higher density than conventional powder metallurgy components. From our 40 years’ experience of plastic injection moulding, we have developed our original binder system, which leads to higher cost efficiency and a wider range of materials selection.

**Materials**

Smaller powder size and wider material selection

We have experiences including, but not limited to the following materials

- Stainless steel, SCM, Magnetic alloy, Non-magnetic alloy
- Titanium, Titanium alloy
- Tungsten alloy
- Copper, Copper alloy
- Nickel
- Molybdenum alloy
- Platinum, Platinum alloy, Gold alloy

**Reliability**

Assurance & development from precise manufacturing

Quality assurance & Research equipment
- Optical measurement (HXAGON OPTIV-321GL, GOM ATOS)
- X-ray CT (Nikon)
- SEM/EDX (Hitachi High Technologies SU1510)
- Ion milling (Hitachi High Technologies E-3500)
- Optical/Laser microscopy
- Carbon combustion analyser (Horiba EMIA-221V2)
- TGA (Shimadzu TGA-51)
- Tensile testing machine (Shimadzu AG-100K-Nxplus)

**Design/Support**

Minimise your production leading time

Our measurement and computer calculation system speed up the optimisation of mould design and process parameters

- Confirmation from customer
- Mass production

**Solutions**

Apply μ-MIM to realise your innovative ideas

Integration
- Undercut
- Ultra thin
- Composite

- Reduce part number and assembly time while maintaining mechanical strength
- Mass production of metal components with thin parts
  Minimum thickness: 80 μm
- Mass production of hollow structure with undercut and curve

**Applications**

Medical, Electronic, Automotive and other industries

- Micro check valve
- Internal gear
- Micro gear

Micro nozzle

- Length: 8.00 mm
- Outer diameter: 2.2 mm
- Inner diameter: 1.80 mm
- Wall thickness: < 0.2 mm

- Outer diameter: 2.2 mm
- Inner diameter: 1.7 mm

**Porous**

Higher specific surface area, higher potentials

Nano-porous paper

This metal porous paper has large specific surface area as 100 m²/g

Titanium Foam

Our Titanium foam has open-cell structure with high strength-to-weight ratio and high compressibility