



We do  
**titanium better,**  
because we do  
**MIM better.**

Creating the finest small, precision titanium components requires the most advanced technology.

Today, that means using Metal Injection Molding.

And getting the most advanced MIM means using Praxis. That's because we take the process to a higher level in the manufacture of sophisticated aerospace and defense components - with our proprietary version of **Titanium Injection Molding**.

#### **Unique Solutions for Critical Applications**

This innovation allows us to deliver superb quality and uniformity of parts regardless of the manufacturing complexity or quantity involved. The result? High-value, high-performance titanium aerospace and defense parts that meet even the most demanding technical requirements.

The story, then, is simple. From design expertise to meticulously precise manufacturing to timely product delivery, Praxis really does do titanium better.

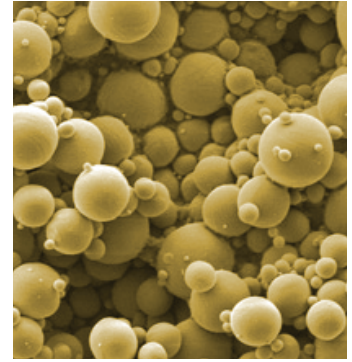
#### **Praxis manufacturing aspects for Aerospace and Defense**

- Design Flexibility
- High strength to weight ratio (Ti-6Al-4V)
- Hollow/porous sections
- Wear resistant coating
- Surface finish to 5  $\mu\text{m}$



## TITANIUM INJECTION MOLDING OFFERS THESE ADVANTAGES:

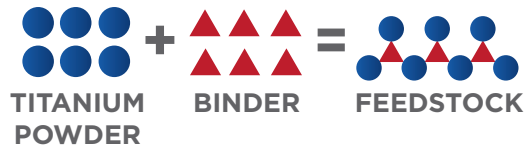
- Cost **savings of 20-50%** over multi-axis CNC machining or investment casting
- Increased **design flexibility** and net-shape features with reduced manufacturing cost
- **Improved performance**, tightened tolerances and superior surface finish
- Mid to **high production volumes** scaled up quickly
- **High quality, grade 5 titanium** – Our Ti-6Al-4V, Grade 5 material complies with the chemistry and mechanical property requirements of ASTM F2885 and ASTM F1472.



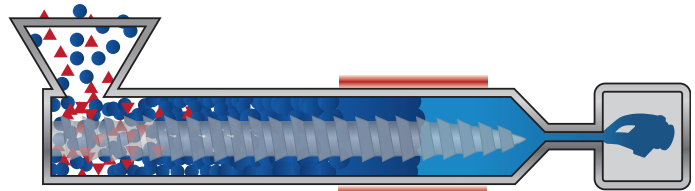
## Titanium Injection Molding Process

Our unique and robust manufacturing method results in specialized titanium components that meet the industry's most exacting standards of quality and precision:

### 1. Feedstock Formation

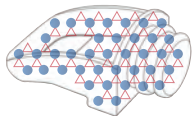


### 2. Injection Molding



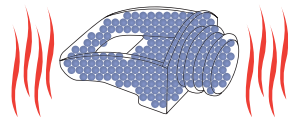
BINDER MELTS - FEEDSTOCK FLOWS INTO MOLD

### 3. Debinding



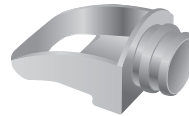
BINDER EXTRACTED FROM FEEDSTOCK

### 4. Sintering/Thermal Processing



TITANIUM POWDER DENSIFIED

### 5. Resulting Solid Component



### 6. HIP'ing/Secondary Processing



MACHINING, SURFACE FINISHING, CLEANING, PASSIVATION OR LASER MARKING