



INDO-MIM[®]

COMPLEXITY SIMPLIFIED

INDO-MIM : MEDICAL CAPABILITIES



MEDICAL GROUP : KEY STRENGTHS



- ✓ **ISO 13485: 2016 certified MIM facility since year 2008 with an ISO Class 8 Clean Room facility**
- ✓ **Twenty three years of experience in making MIM parts for world's leading medical OEMs in surgical & orthopedic devices**
- ✓ **Capability to make in house medical device Sub Assemblies**
- ✓ **Cost competitiveness sustained by large pool of highly skilled, English speaking, Development, Quality & Production engineers**

CERTIFICATIONS



Medical – New Technology Capabilities

1

Metal Injection Molding

2

Plastic Over Molding

3

Silicon Over Molding

4

Precision Machining Group

5

Micro Molding

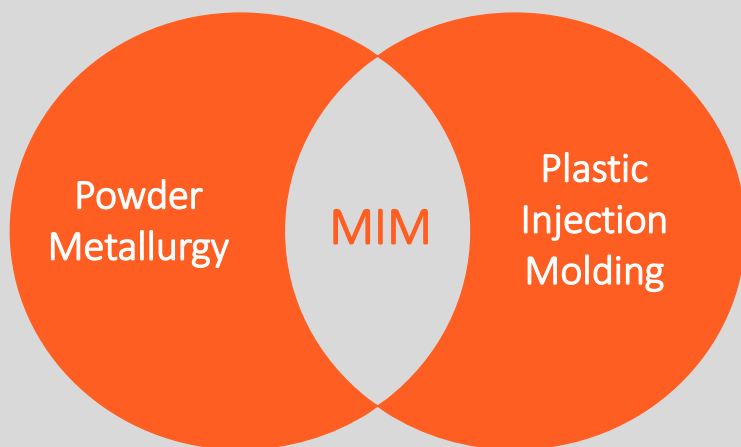
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Medical Sub Assemblies

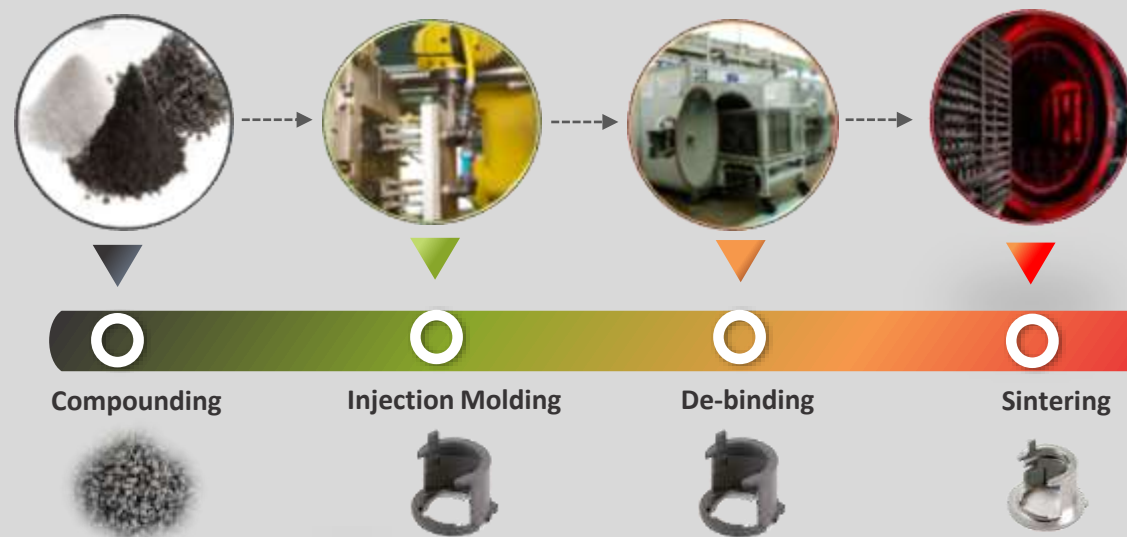
METAL INJECTION MOLDING



MIM combines Powder Metallurgy and Plastic Injection Molding



MIM Manufacturing Process



Challenge is in predicting the shrinkage to achieve final dimensions accurately first time right

CASE STUDY – VESSEL SEALING



APPLICATION - VESSEL SEALING DURING ENDOSCOPIC SURGERY



- Part consistency is an inherent capability of MIM, resulting in best fit parts.
- High volume easily achievable.

SOLUTION

PRODUCT DESCRIPTION

- Material: MIM 17-4PH (SS)
- Weight: 0.3 grams
- Segment: Medical
- Annual Requirement: 200K



- Improper alignment of matching jaws during assembly due to inconsistency in the machining process.
- Challenging to meet high volume conventional process.

CUSTOMER PAIN POINTS

CASE STUDY – CARTRIDGE BLADE



APPLICATION - SURGICAL STAPLER



- Unique combination of MIM + secondary CNC Machining
- Teflon Coating to reduce the surface friction
- MIM 17-4PH with H900 Heat Treatment

SOLUTION

PRODUCT DESCRIPTION

- Material: MIM SS17-4PH
- Weight: 11 grams
- Segment: Linear Titanium Stapler
- Annual Requirement: 700K



- Thin wall thickness, length / thickness ratio is very high and complex profile
- Geometrical tolerances like straightness of 0.1mm across the 80mm length
- High Tensile Strength requirement due to cantilever force

CUSTOMER PAIN POINTS

CASE STUDY – OPEN HEART SURGERY



APPLICATION – OPEN HEART SURGERY

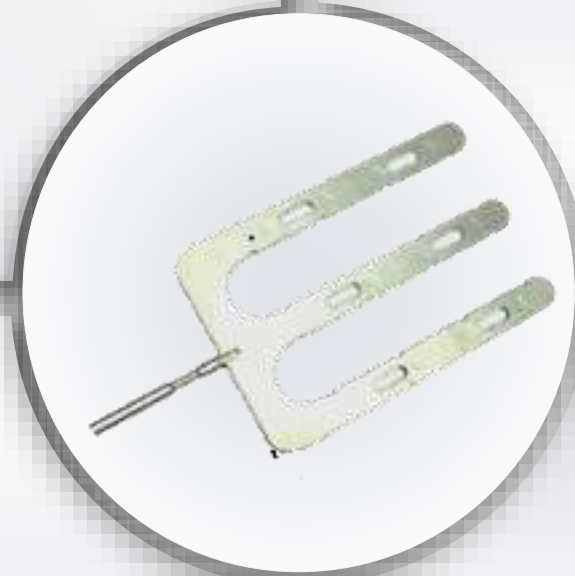


- MIM integrated positioner arm and grip as a single component.
- Sharp edges eliminated by providing radius/chamfer directly in the tool.

SOLUTION

PRODUCT DESCRIPTION

- Material: MIM 316 (SS)
- Weight: 23 grams
- Segment: Medical
- Annual Requirement: 12K



- Positioning arm and grip, produced separately and welded.
- Secondary operation required to remove sharp edges.

CUSTOMER PAIN POINTS

PLASTIC OVERMOLDING CAPACITY



- 1 Dedicated facility for plastic Overmolding (5000 Sq. Ft.)
- 2 High precision vertical & horizontal injection molding machines
- 3 Best in class auxiliary equipment's for molding machine
- 4 Well monitored raw material storage facility
- 5 Capability to process high temperature engineering plastics
- 6 Highly competent tool making facility
- 7 Trained professionals for processing high temperature engineering plastics
- 8 Well equipped inspection facility to ensure the part quality



Horizontal Over molding Machine

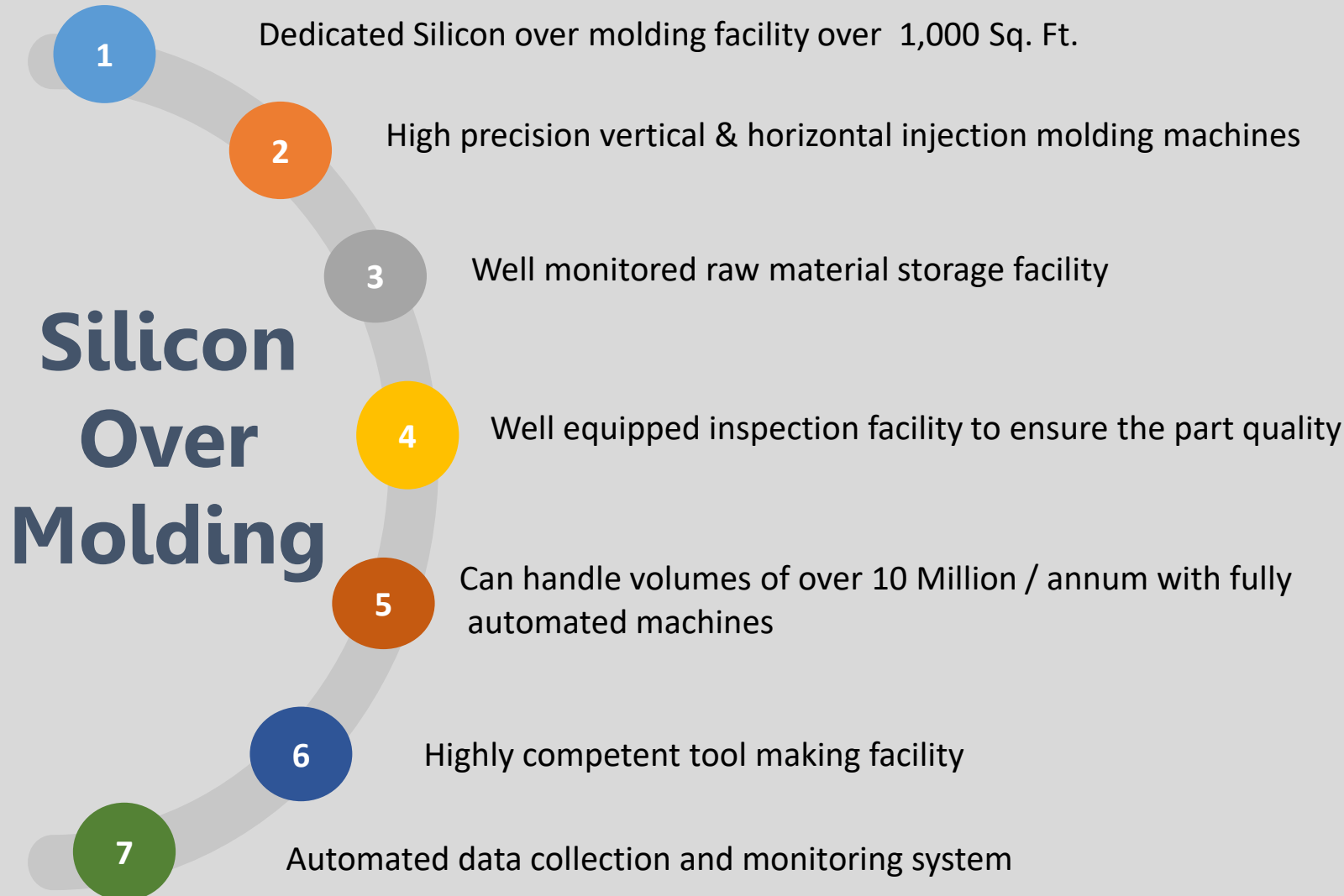


Vertical Rotary Over molding Machine

PLASTIC OVERMOLDED & ASSEMBLY COMPONENTS



LIQUID SILICON INJECTION MOLDING CAPACITY



PRECISION MACHINING GROUP



MICRO MOLDING



Material : Bioresorbable
Weight : 2mg



Material : PA66 / TPE
Weight : 1mg / 16mg



Material : Steel 316L
Weight : 9mg



Material : Steel 316L
Weight : 26mg

MEDICAL ASSEMBLY CAPACITY



Medical Assembly

1

Dedicated Automated assembly line facility over 2,000 Sq. Ft. already in production

2

Further expansion of 30,000 Sq. Ft. for assembly in progress

3

Over 10 years of experience in handling sub assemblies of MIM components

4

Trained engineers with development of over 30 assembly projects

5

Can handle volumes of over 10 Million / annum with fully automated machines

6

Best in class clean room facility for surgical assembly components

7

Automated data collection and monitoring system



MEDICAL SUB-ASSEMBLY COMPONENTS



DEDICATED MEDICAL FACILITY



COMPOUNDING



MOLDING



DEBINDING



SINTERING



INSPECTION & ASSEMBLY AREA



ISO CLASS 8 CLEAN ROOM AREA



MEDICAL ASSEMBLY CAPABILITIES



FORMING TECHNOLOGY

- ✓ Metal & Ceramic Injection Molding
- ✓ Plastic injection molding & Over Molding
- ✓ Silicon Injection Molding & Over Molding
- ✓ Extrusion
- ✓ Coil / Sheet Metal and Wire Forming



ASSEMBLING TECHNOLOGY

- ✓ Electro-Mechanical assembling
- ✓ Semi / Fully automation
- ✓ Optics assembly
- ✓ Heat Shrinking
- ✓ Sealing in Packaging
- ✓ Packaging / Labelling



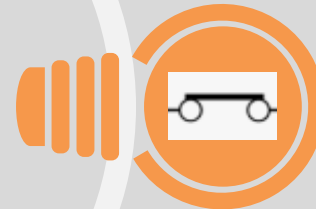
MACHINING TECHNOLOGY

- ✓ CNC Milling / Turning
- ✓ CNC Grinding / Polishing
- ✓ Titanium Processing
- ✓ Stamping
- ✓ PEMC / EDM
- ✓ Metal Bending (Including Tubes)
- ✓ Heat Treatment
- ✓ Laser Cutting



JOINING TECHNOLOGY

- ✓ Laser welding
- ✓ Dissimilar Metal Welding
- ✓ Soldering
- ✓ Induction / Ultrasonic Welding
- ✓ Riveting/ Crimping/Swaging
- ✓ Press Fitting
- ✓ Gluing process
- ✓ Degreaser/ Ultrasonic Cleaning



MEASUREMENT TECHNOLOGY

- ✓ Evaluation of image (scope related)
- ✓ Evaluation method of surgical function
- ✓ Evaluation method of insertion ability
- ✓ Particles inspection (Optical image)
- ✓ Dimensional inspection
- ✓ Interferometer, Collimator etc.



SURFACE TREATMENT

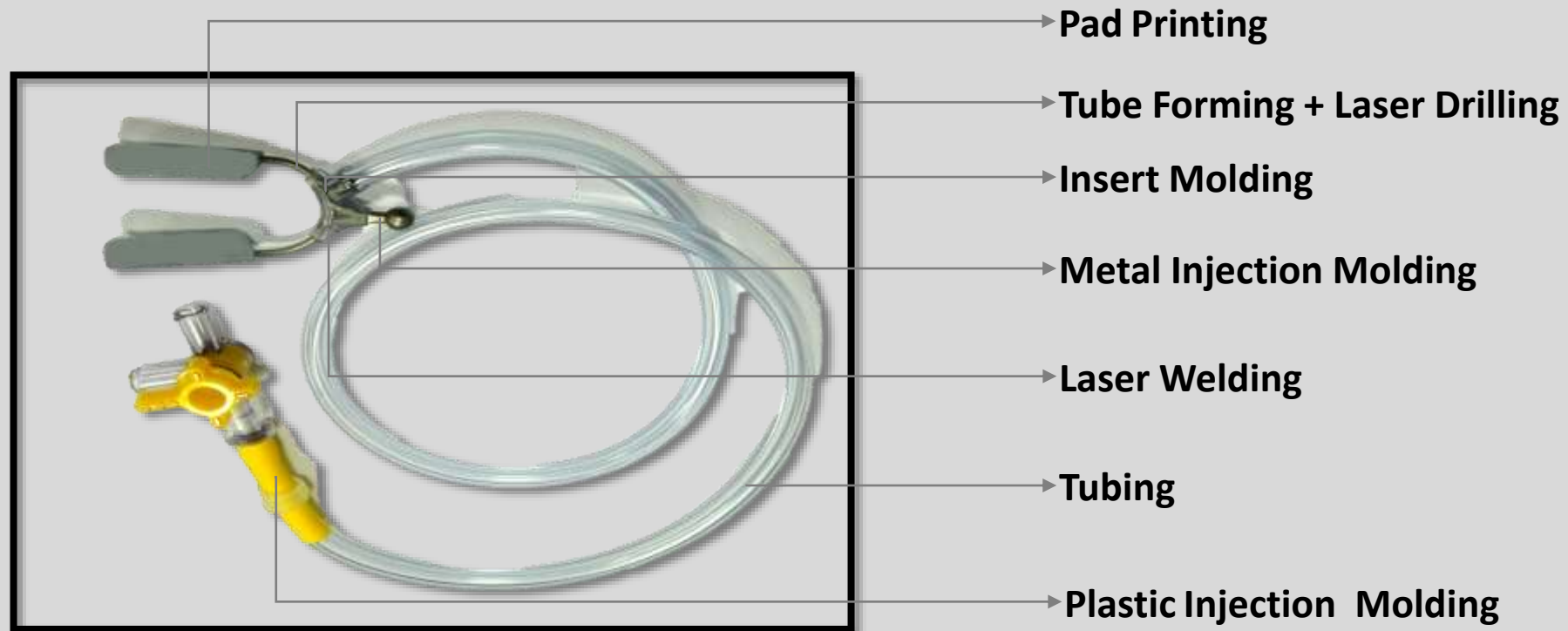
- ✓ Chemical Etching
- ✓ Laser Marking / Engraving
- ✓ Glass Bead Blasting / Tumbling
- ✓ Any Coating / Passivation
- ✓ Painting / Pad Printing



END-TO-END MEDICAL DEVICE TECHNOLOGIES



INDO-MIM Medical is **"ONE STOP SOLUTION"** for **Medical Assembly + Testing**



MORE THAN 3000 HEARTS – ONE BEAT

Creating Value :

In-depth technical competence

International presence

Application and Industry Expertise

Long-term Relationships

THANK YOU

www.indo-mim.com

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