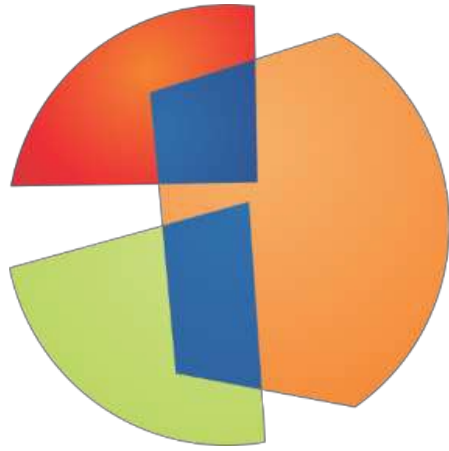




INDO-MIM[®]
COMPLEXITY SIMPLIFIED

CORPORATE PRESENTATION





MESSAGE FROM

Krishna Chivukula Jr.

CEO, INDO-MIM

We are a leading **global supplier of precision-engineered products** using **Metal Injection Molding** as the core manufacturing technology. **INDO-MIM** has achieved a leadership position in the field of **MIM**, providing precision-engineered products to customers in more than **forty countries in the Americas, Europe, and Asia**

“INDO-MIM is committed to achieve total customer satisfaction”

ABOUT US



MANUFACTURING FOOTPRINT



MIM, Hosakote, Bangalore

- Serve as headquarters
- Defense parts manufacturing



MIM, Doddaballapura, Bangalore

- MIM, CIM, 3D Printing, Machining, Jigs & Fixtures, Powder Plant & Special Processes
- 700 million parts capacity



Investment Casting, Tirupati

- Air Melt, Vacuum, Reverse Gravity Casting
- Machining, NDT Welding, MPI, FPI



Aerospace Facility, Doddaballapura, Bangalore

- Aerospace Precision Machining
- NADCAP-approved Special Processes



INDO-MIM Inc, MIM, 3D Printing, Texas, US

- 90 million parts capacity
- To enhance supply chain and support to [USA](#) customers



Triax Industries, LLC. Investment Casting CHANDLER -AZ, USA

- Vacuum Investment Casting Directionally Solidified (DS), Single Crystal (SC) and Equiax(EQ)



CMG Technologies, MIM & 3D Printing, Suffolk, UK

- Supplying to Automotive, Aerospace and Industrial sector
- 25 years of experience in MIM process



Medical & Defense Machining, Chennai

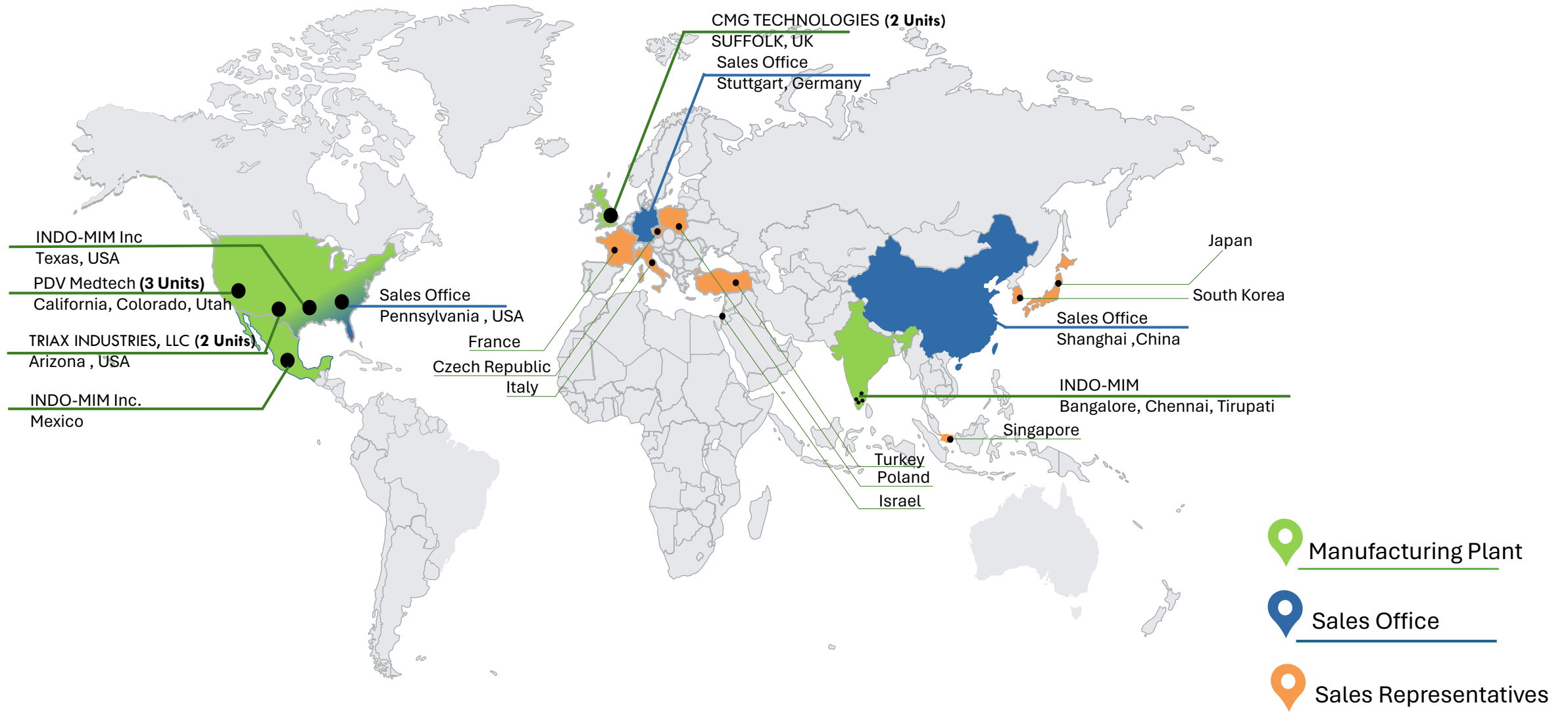
- 120+ CNC Machines
- Assembly & Sub-Assembly



PDV Medtech, Medical Device Facility, US

- Medical device design & development
- Proto samples to production volumes
- Sterilization & Medical packaging included

GLOBAL PRESENCE



GLOBAL SALES & MARKETING = GLOBAL REACH



20+ Years of serving global markets



Providing precision-engineered products to customers in more than forty five countries in the Americas, Asia, Australia and Europe

CERTIFICATIONS



Certificate Title	Standard	Industry Sector
CERTIFICATE AS 9100:2016 Quality Management System - Requirements for Aerospace, Space and Defense Organizations	AS 9100:2016	AEROSPACE
CERTIFICATE IATF 16949:2016 Manufacture of Motor Vehicle Related Parts, Smart Connected Parts, Plastic Injection Moulded Parts, Precision Mechanical Parts, Precision Mechanical Parts and Subassemblies of Devices as per Customer Specifications for use in Original and Remanufactured	IATF 16949:2016	AUTOMOBILE
CERTIFICATE ISO 13485:2016 Medical Devices	ISO 13485:2016	MEDICAL
CERTIFICATE ISO 14001:2015 Environmental Management System	ISO 14001:2015	ENVIRONMENT
CERTIFICATE ISO 9001:2015 Quality Management System	ISO 9001:2015	QMS
CERTIFICATE ISO CLASS 8 Clean Room and Controlled Environment	ISO CLASS 8	CLEAN ROOM
CERTIFICATE ISO 45001 Occupational Health and Safety Management System	ISO 45001	HEALTH & SAFETY
CERTIFICATE ISO 27001 Information Security Management System	ISO 27001	INFO SECURITY

MIM

METAL INJECTION MOLDING

- Largest installed capacity
- Inhouse Tool Manufacturing



CIM

CERAMIC INJECTION MOLDING

- ISO 9001 and ISO 14001 Certified
- Ceramic Cores



IC

INVESTMENT CASTING

- Best in Class State of art Facility
- Air Melt & Vacuum Melt



ASG

AEROSPACE SOLUTIONS GROUP

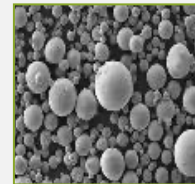
- Precision Machining
- NADCAP Certified Surface Treatment



POWDER

POWDER PREPARATION

- Vacuum melting Gas atomized powder production



AM

ADDITIVE MANUFACTURING

- Prototyping
- Metal Binder Jet
- Powder Bed Fusion process

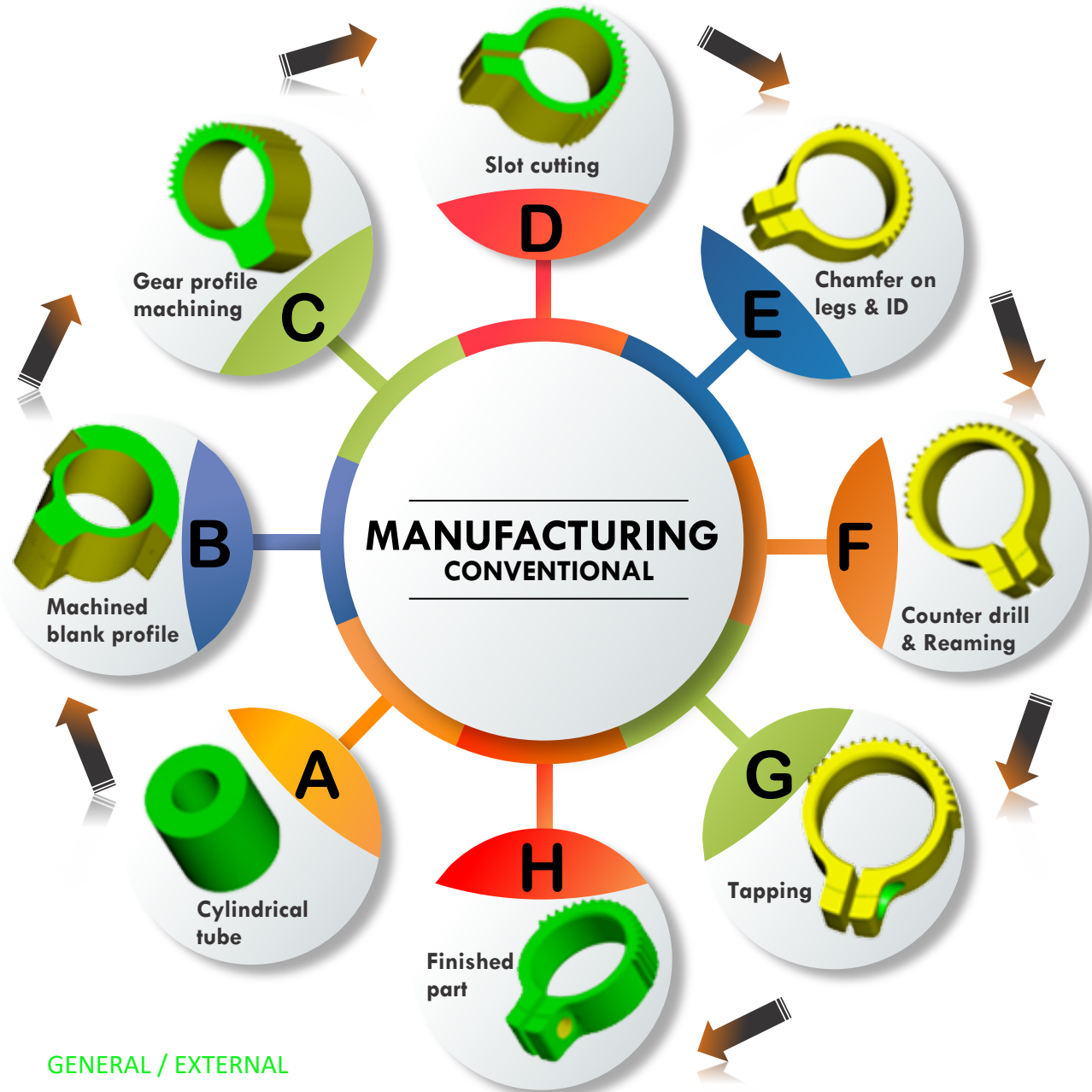


ASP

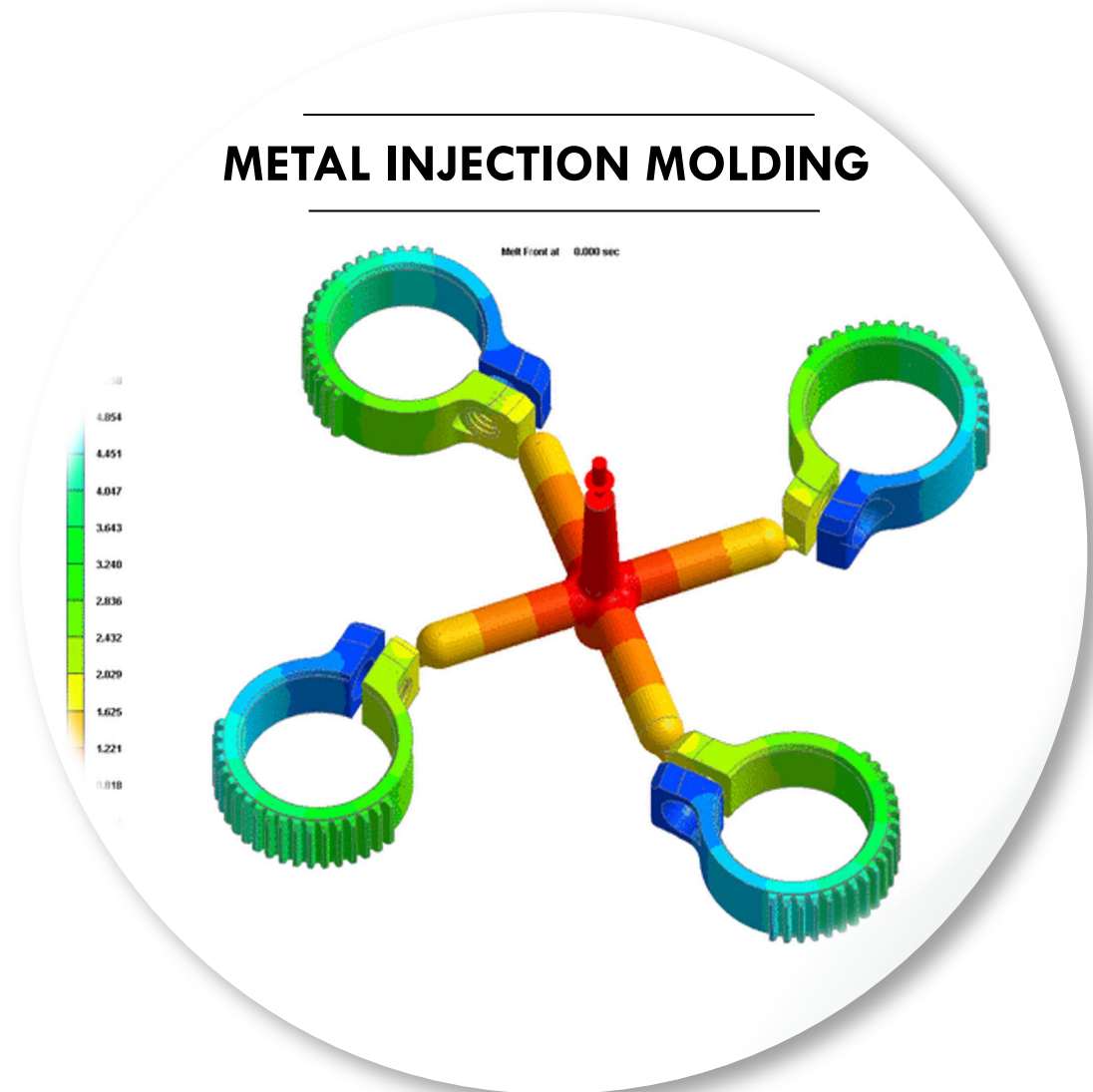
AUTOMATION SOLUTIONS PROVIDER

- Robotics
- SPM
- Vision System
- IOT

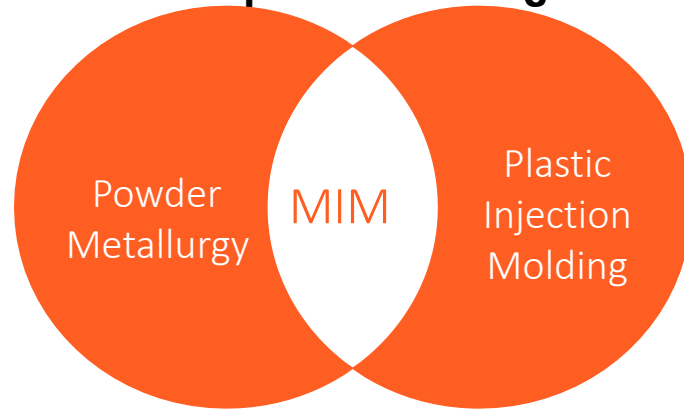




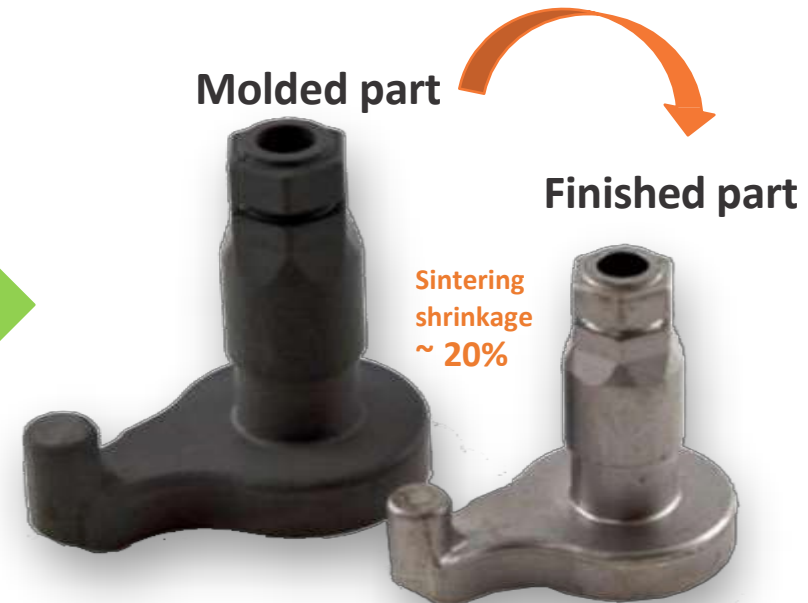
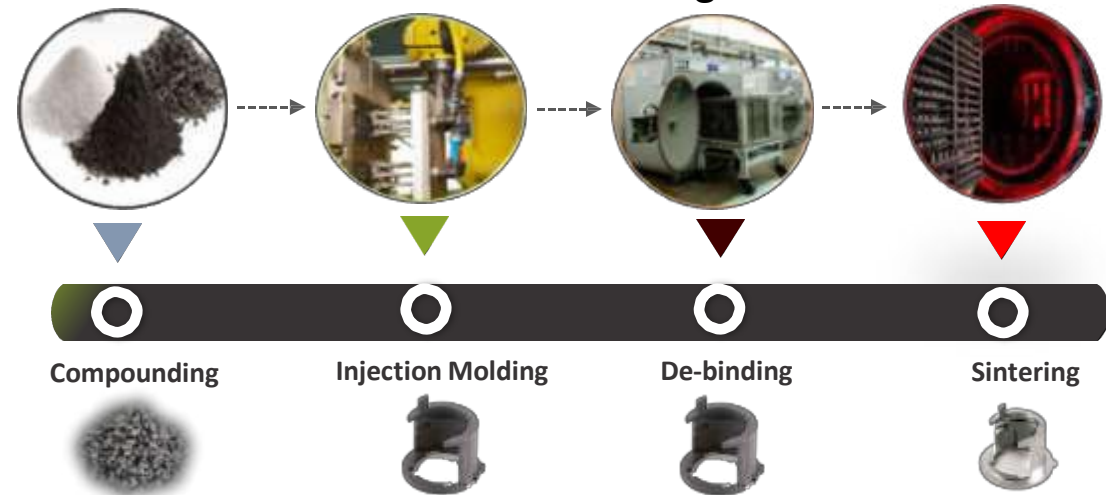
GENERAL / EXTERNAL



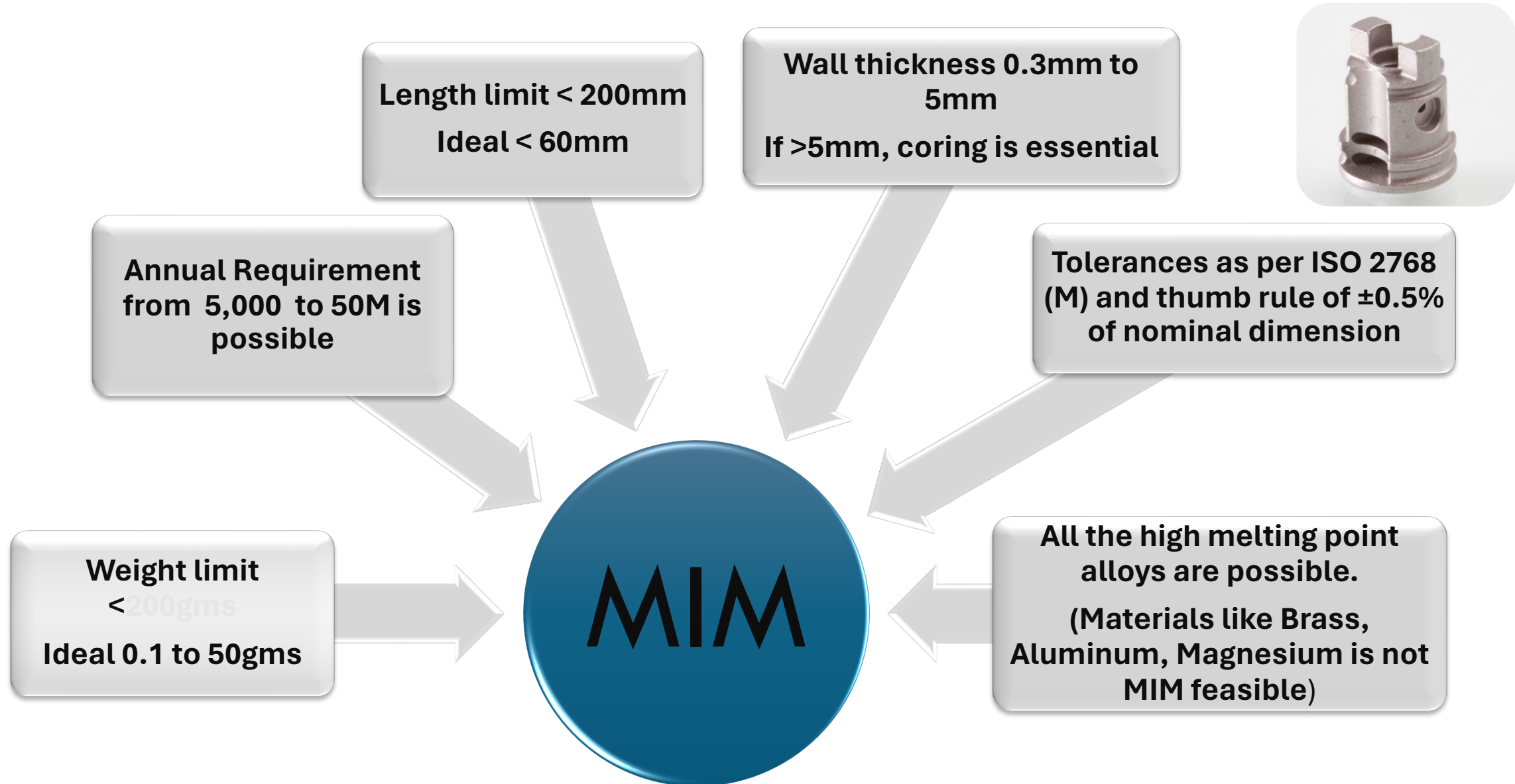
MIM combines Powder Metallurgy and Plastic Injection Molding



MIM Manufacturing Process



WHAT IS AN IDEAL MIM PART



METAL INJECTION MOLDING INFRASTRUCTURE



Molding Shop



De-binding Shop



Sintering shop



Machine shop

WORLD CLASS MIM EQUIPMENT



MACHINERIES



Molding Machine

154

Sintering Batch Furnace

43

Continuous Furnace

5

De-binding Machines

36

CNC Milling Machines for Tool Room

17

EDM & WEDM for Tool Room

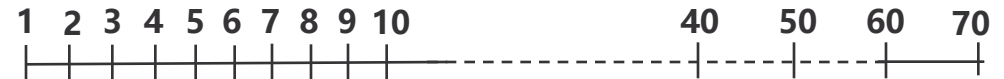
27

Machine Shop CNC

35



INSPECTION EQUIPMENTS



19

3-D CMM

63

VMS

9

Profile Projector

11

Hardness Tester

5

Metallurgical Microscope

2

UTM

5

X-Ray

WORLD CLASS TOOLING CAPABILITY

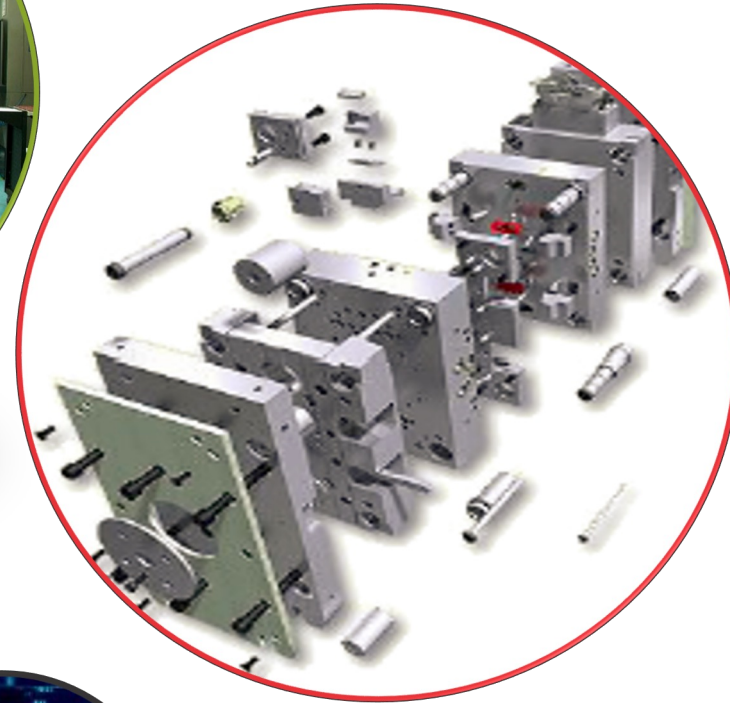
IN-HOUSE TOOL DESIGN

State-of-the-art tool rooms



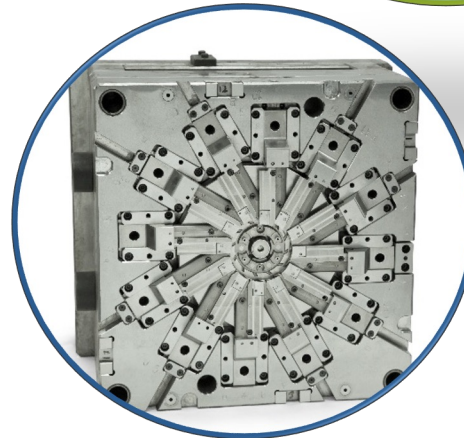
HUGE CAPACITY

Producing 90 tools a month !



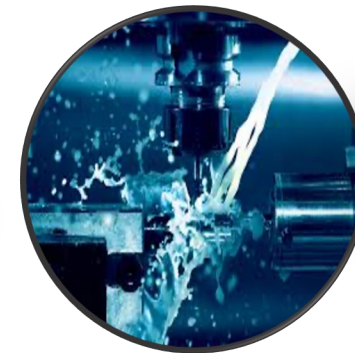
MULTI-CAVITY TOOLS

Between 2 to 32 cavities



CONTINUOUS INNOVATION

To avoid post-MIM machining





PRODUCT PORTFOLIO



AUTOMOTIVE

Turbo charger Vanes, Sensor housings, auto door locks, Seat belt parts, fuel injector, shock absorber components etc.



CONSUMER

Fashion accessory, Hand/Power Tools, Lock parts, faucet components, crossbow parts, cellphone components etc.



DEFENSE

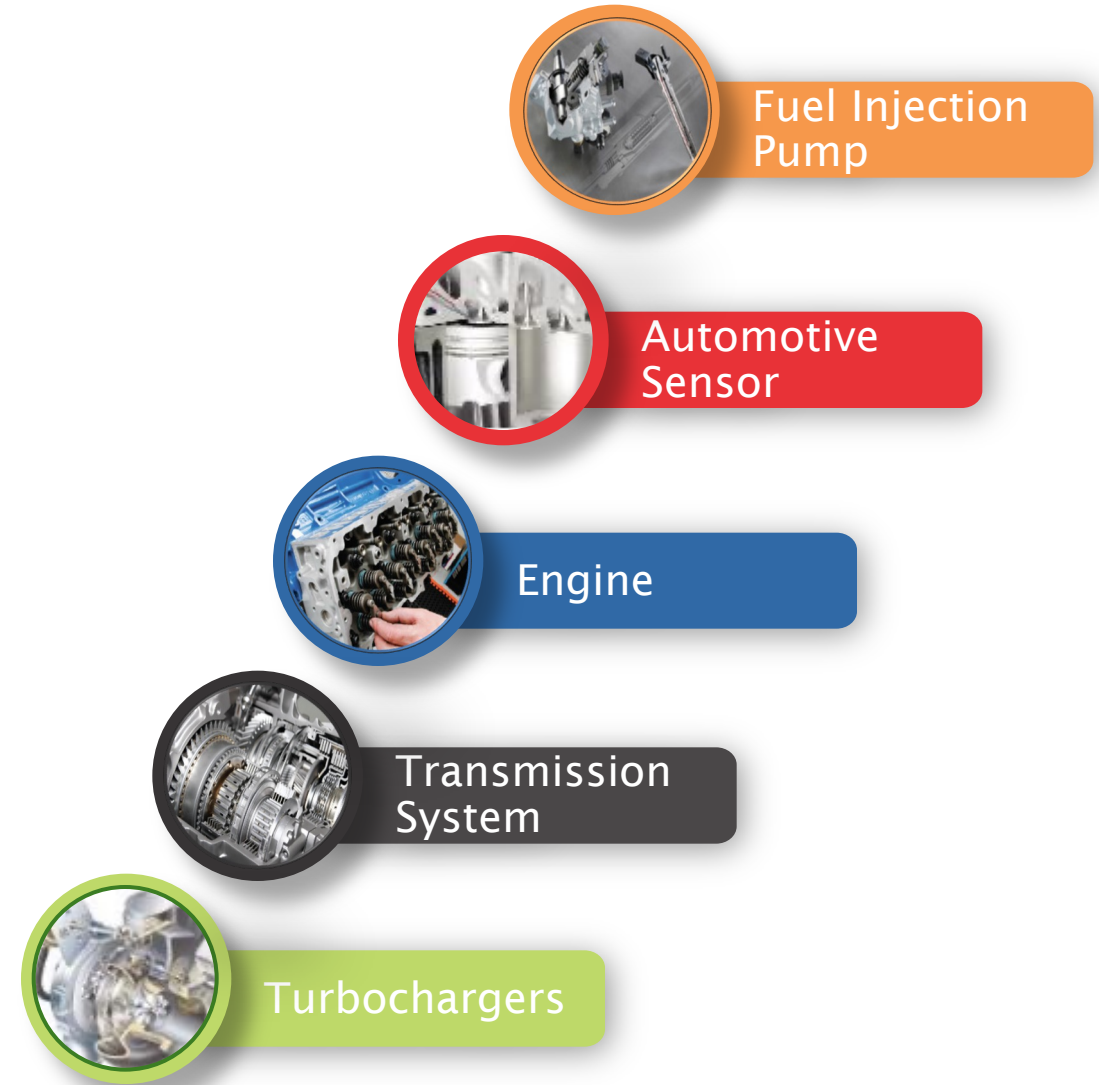
Handgun, Rifle, Shotgun parts, Parts for firearm accessories, silencer components etc.



AERO & MEDICAL

Parts for Endoscopic, laparoscopic, dental, robotic and orthopedic surgical devices. Aircraft seat and instrumentation components etc.

ROADMAP - AUTOMOTIVE



AUTOMOTIVE CASE STUDIES



ROADMAP - CONSUMER



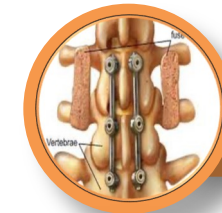
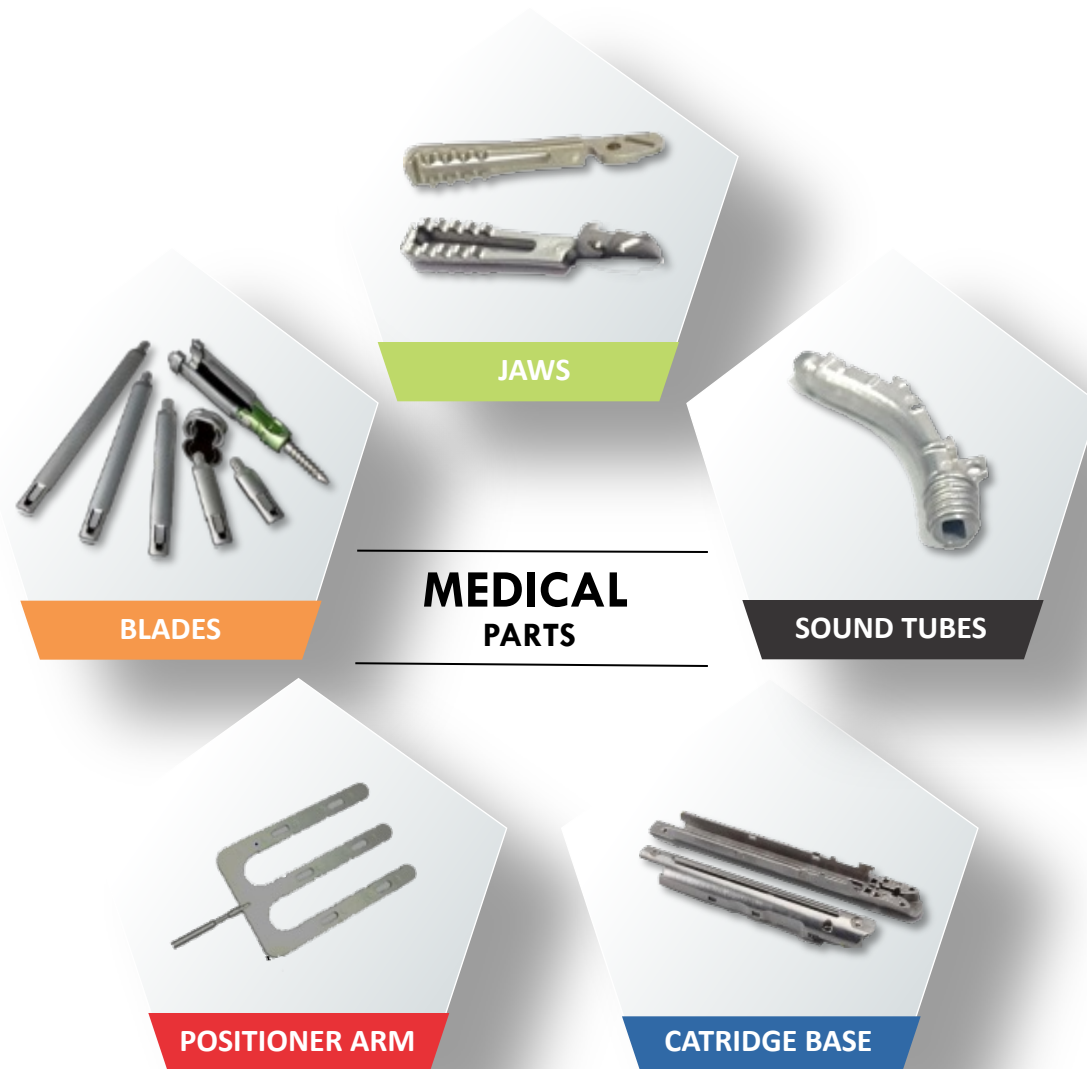
GENERAL / EXTERNAL



CONSUMER CASE STUDIES



ROADMAP - MEDICAL



Orthopaedic
Surgery



Cardiac
Surgery



Surgical Stapler



Hearing Aid



Laparoscopy



ROADMAP - DEFENCE



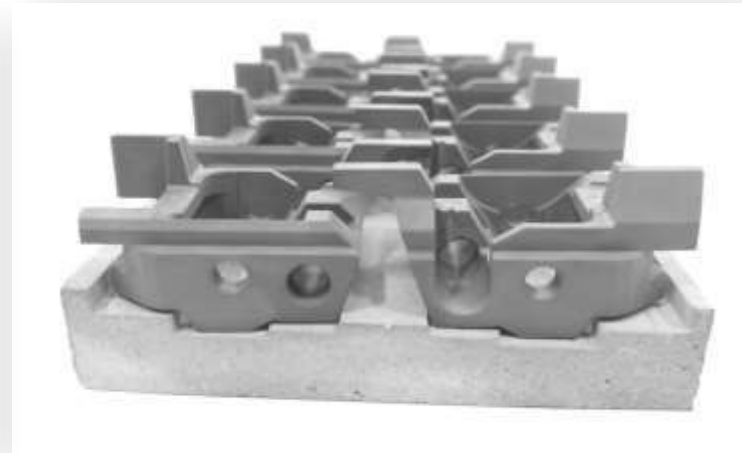
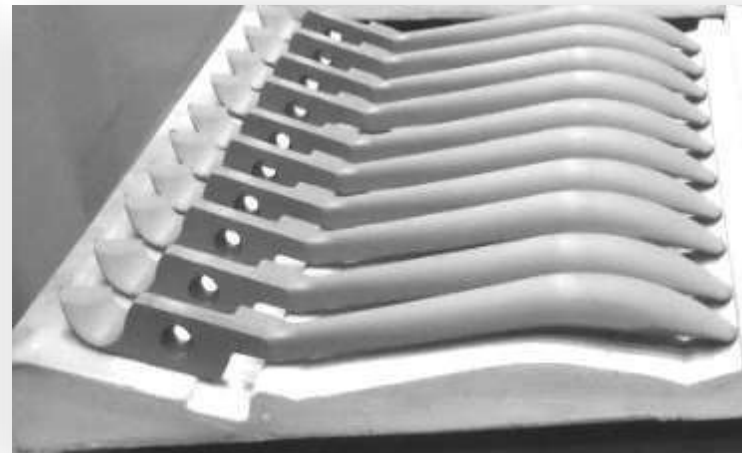
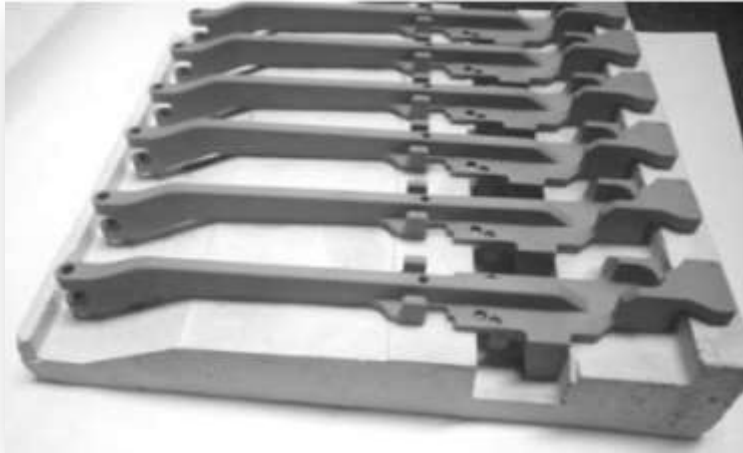
COMMONLY PRODUCED FIREARM PARTS

Magazine Release	Catch magazine	Safety	Sight
Activator	Firing pin	Lever	Disconnecter
Bolt	Trigger Bar	Slide stop	Ejector
Extractor	Elevation screw	Button	Bolt catch
Trigger	Hammer	Sear	Catch barrel



MIM PARTS PORTFOLIO



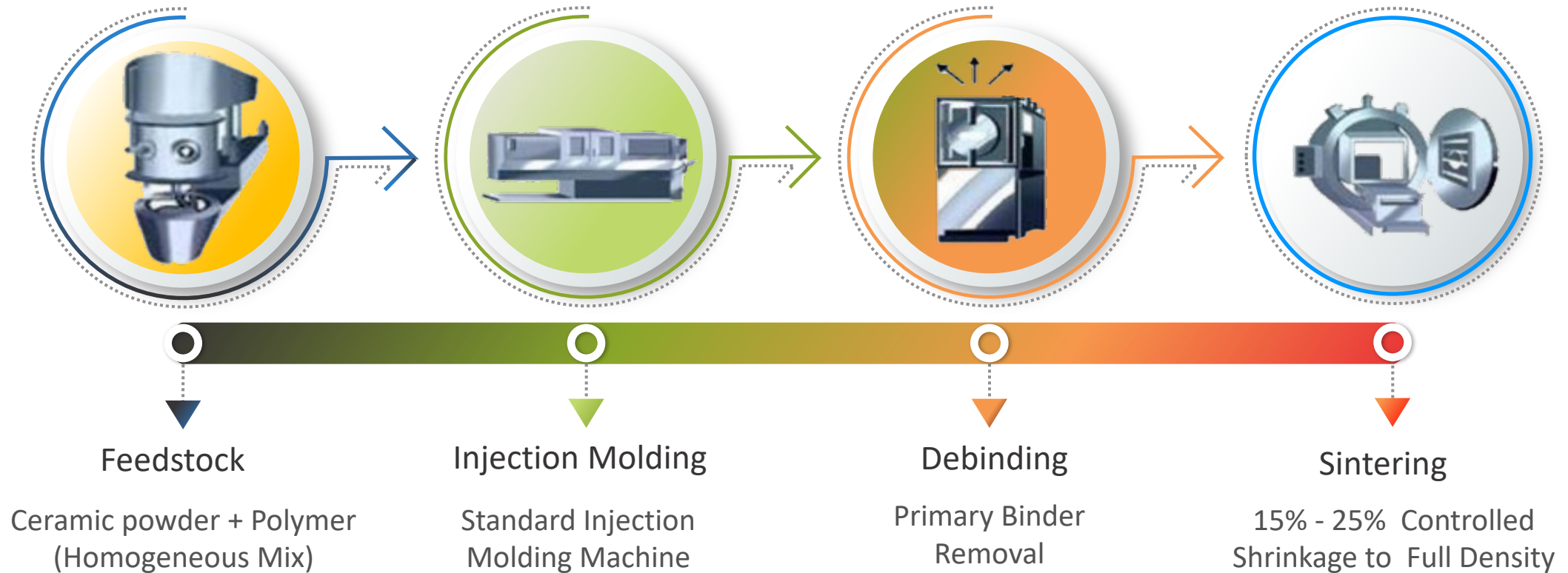


IN-HOUSE CERAMIC SETTERS

Customized staging setters are designed and manufactured for better dimensional control and capability leading to lower post-MIM secondary operations



CIM PROCESS



- Fine Ceramic powder is mixed with a polymer binder. This mixture is granulated to form “feedstock”
- Feedstock is heated to form viscous slurry and injection molded to form “green” part.
- Part of the binders are removed through solvent de-binding to get “brown” part.
- The brown part is densified through sintering to get ‘finished’ part.

ALUMINUM OXIDE (ALUMINA) 96% PURE ALUMINA:

- For parts that require good wear and corrosion resistance, such as in electrically insulating bodies and the vacuum industry
- Maximum temperature of use: 1600°C

ALUMINUM OXIDE (ALUMINA) 99.8% PURE ALUMINA:

- For parts that require good wear and corrosion resistance, such as in Thread guide, Spark plugs Insulators, electrically insulating bodies and the vacuum industry
- Maximum temperature of use: 1600°C

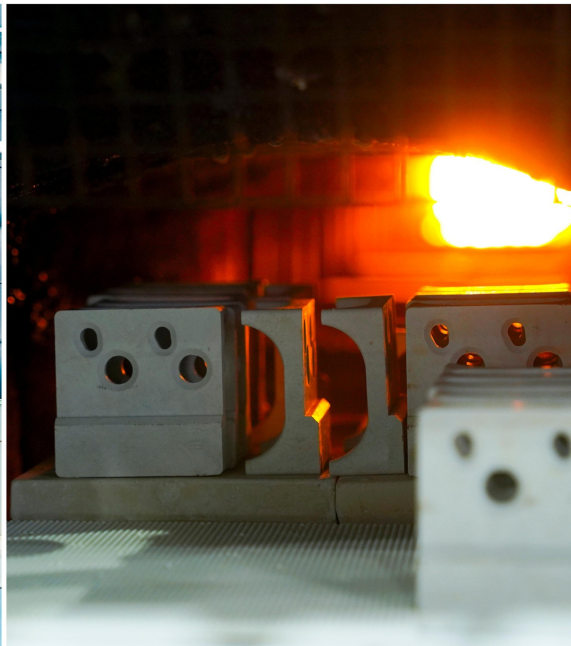
ZTA AND ZIRCONIUM OXIDE:

- For parts that require good wear resistance and Biocompatibility in applications such as Medical device and implants

CERAMIC INJECTION MOLDING



Continuous furnace



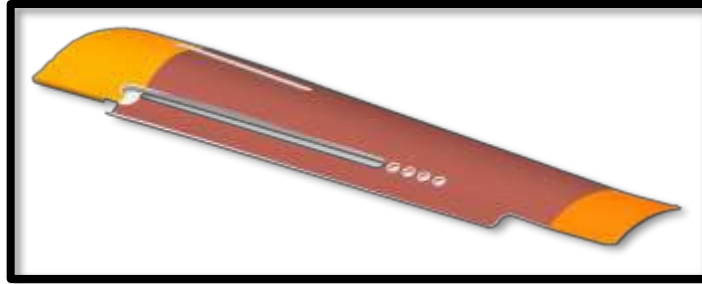
CONTINUOUS FURNACE

GENERAL / EXTERNAL

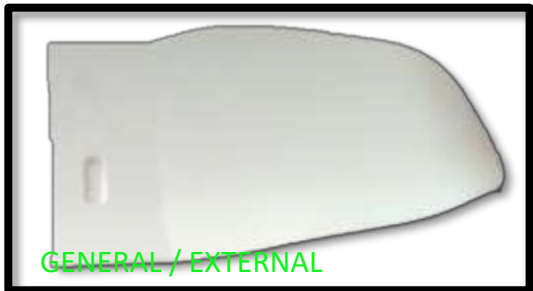
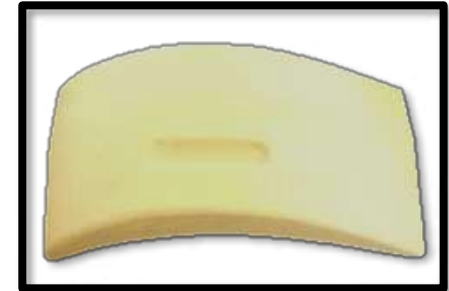


SHOP FLOOR

CERAMIC CORES FOR INVESTMENT CASTING



✓ Ceramic cores are sacrificial ceramic structures primarily used for forming cavities that are too small or complex to be machined within investing casting procedures.

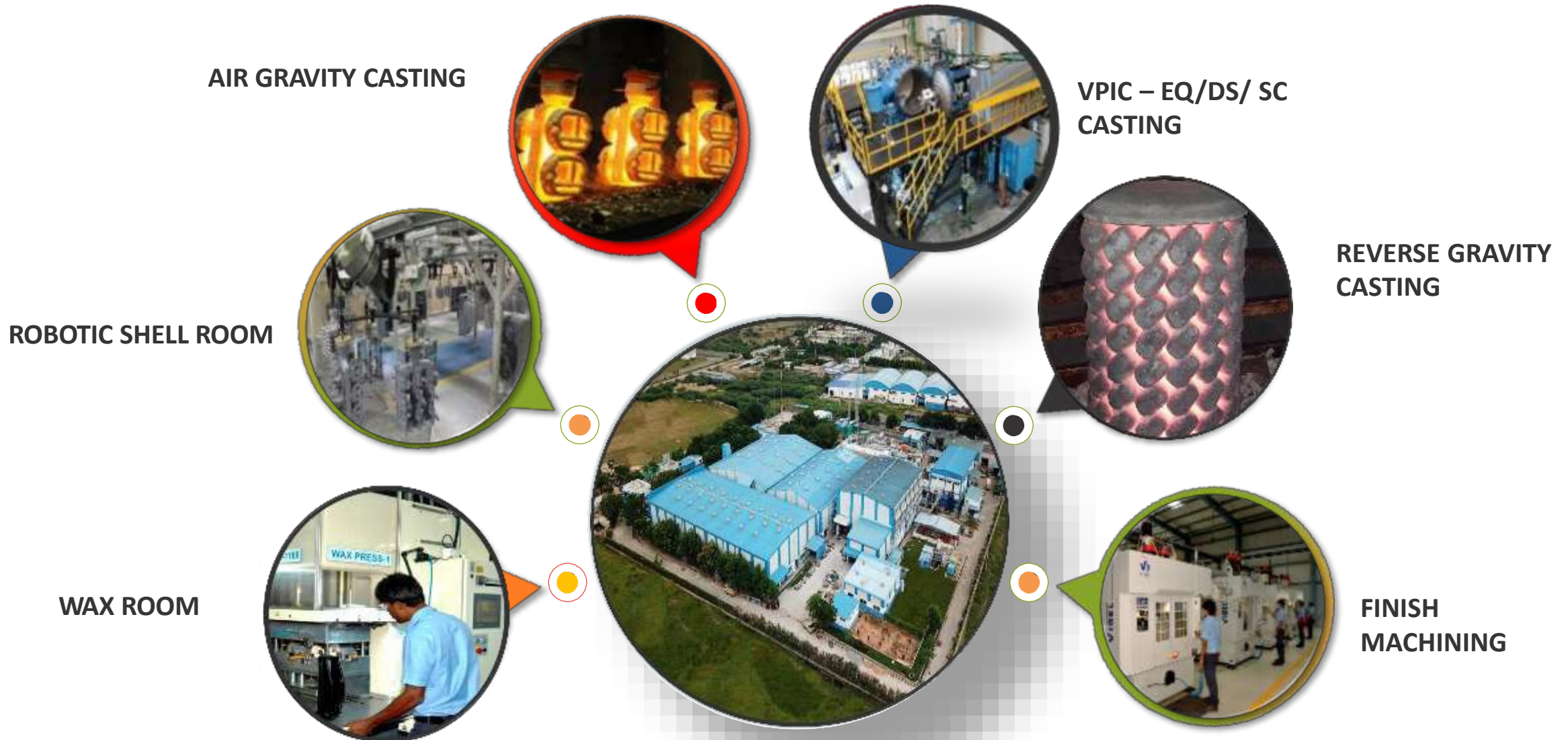


✓ Ceramic cores are predominantly found in Aerospace and Industrial Markets



PRECISION INVESTMENT CASTING

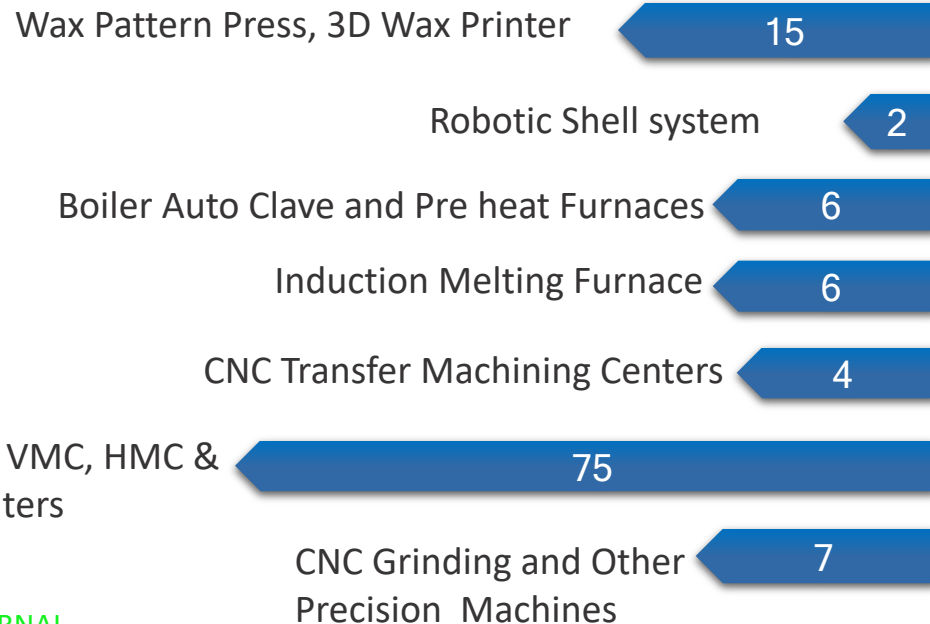
PRECISION INVESTMENT CASTING



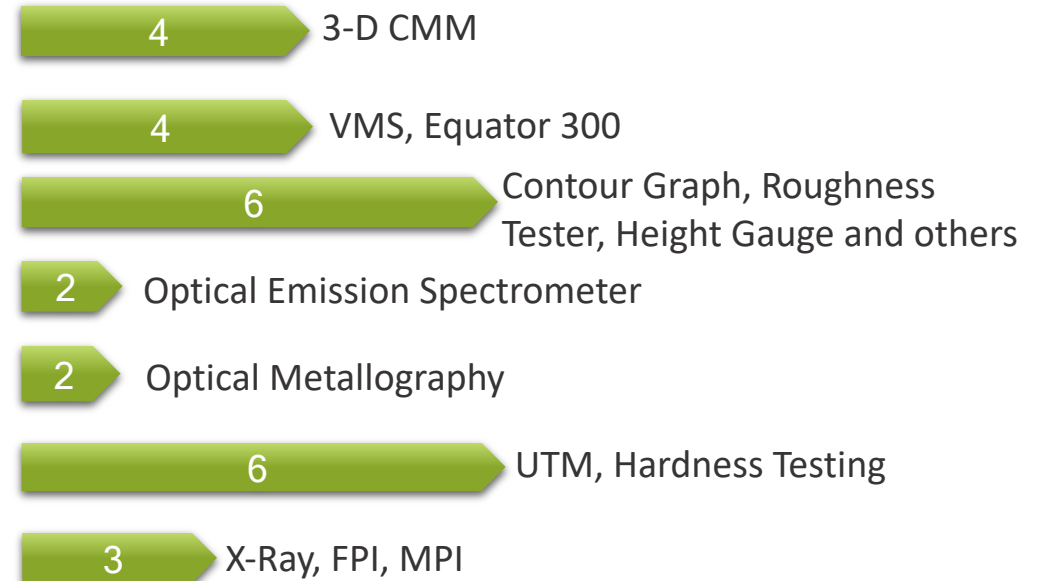
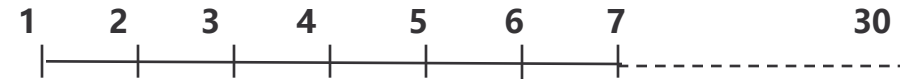
WORLD CLASS AIR-MELTING FACILITY



MACHINERIES



INSPECTION EQUIPMENTS



CAPABILITY MATRIX

COMMERCIAL AIR MELT PRECISION CASTINGS IN

01

Carbon Steel

02

Low alloy Steel

03

Stainless Steel

All varieties (300 & 400 series, precipitation hardening type)

04

Nickel & cobalt based alloys

05

Heat resistant alloy steels

GENERAL / EXTERNAL

PART SIZE CAPABILITIES

01

Weight 10 gm – 20kg

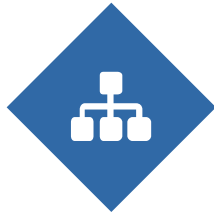
02

Up to 500 mm long

03

2 mm – 100 mm wall thickness

Triax Industries, LLC, originally established in 2000, is a US based precision investment casting and machining provider. In late 2020, the business became a wholly-owned subsidiary of INDO-MIM Pvt Ltd., a world leading Metal Injection Molding and specialty metals manufacturer. Triax extends its parent capabilities to precision vacuum investment castings while joining a corporation intensely focused on investing in improved capabilities and capacity of its primary manufacturing processes.



Triax Castings

State-of-the-art investment casting foundry in Chandler, AZ



Triax Machining

Precision, high-speed grinding operations in Tempe, AZ

INVESTMENT CASTING

Equiaxed (EQ), Single Crystal (SX), and Directionally Solidified (DS) capabilities

PRECISION MACHINING

5 axis grinding, 4 axis milling, EDM (sinker & wire)

FINISHED COMPONENTS

Extensive experience with "airfoil" shapes

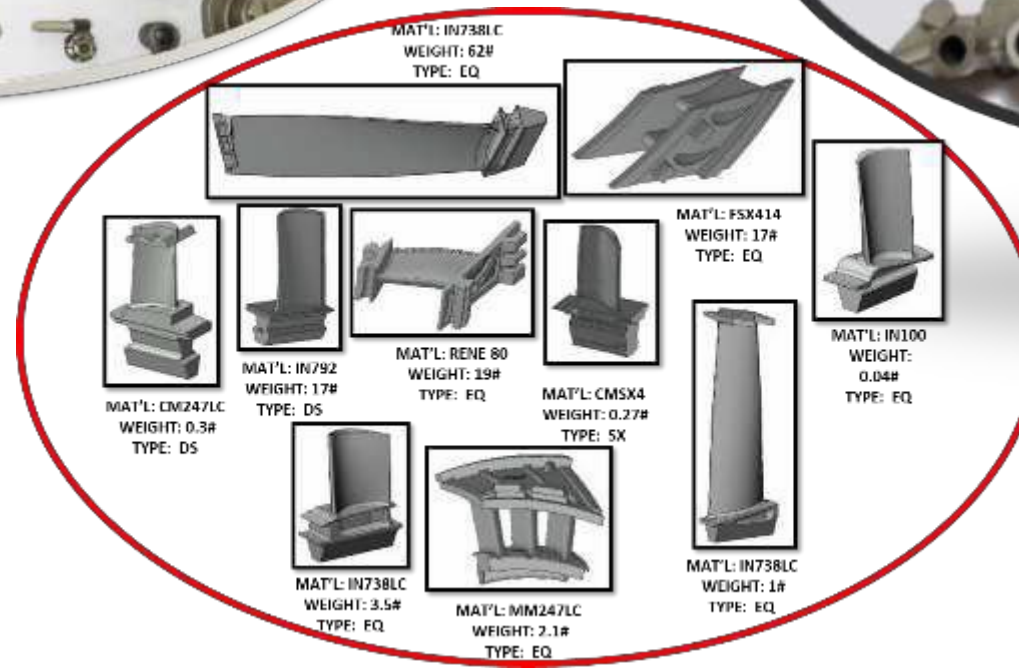
Specialize in blades, vanes, and shrouds for the gas path section and also manufacture other components such as seals, impellers, nozzles

INVESTMENT CAST PARTS PORTFOLIO

- Weight - 10 gms to 500 gms
- Size – 10 mm to 500 mm length
- Wall Thickness - 2 to 20 mm



- Weight - 1 Kg to 20 Kgs
- Size – 300 mm dia & 500 mm length
- Wall Thickness - 2 to 100 mm



- Weight - 50 Gms to 20 Kgs
- Size – 30 mm to 500 mm length
- Wall Thickness – 0.5 mm to 25 mm



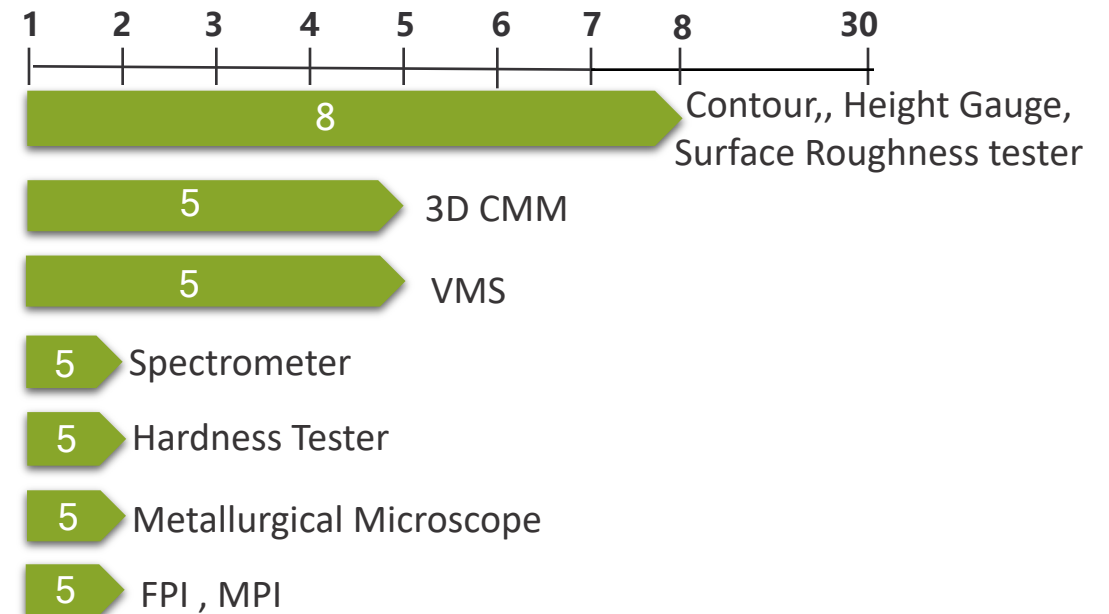
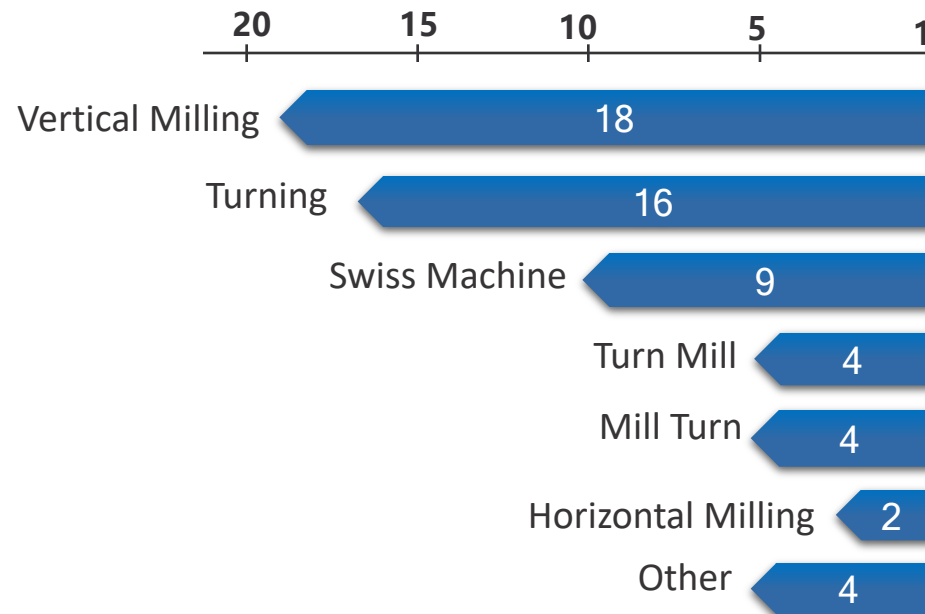
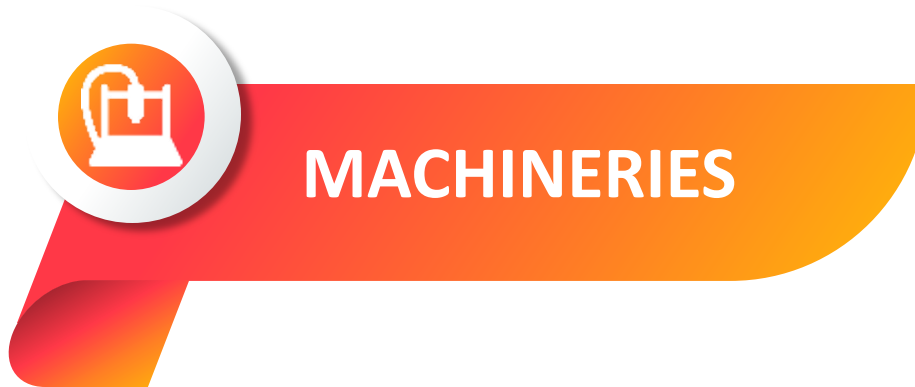
GENERAL / EXTERNAL



PRECISION MACHINING EQUIPMENT



AEROSPACE MACHINING CAPABILITY



COATING / PLATING TEST

- Coating thickness (DT/ NDT/ Eddy Current)
- Coating weight test
- Gloss meter
- Metal conductivity meter
- Salt spray chamber
- XRF - Thickness tester
- pH. conductivity, TDS meter
- Cross hatch tester
- Quantitative/ Qualitative chemical analysis
- Muffle furnace
- Hydrogen embrittlement testing
- Humidity chamber
- Water immersion tester
- Electrochemical Etching
- Laser Marking
- Millipore wash (PWA PPS 2457 & HS PN 14.5)



SPECIAL PROCESSES APPROVALS



Sl no.	Process	AS 9100	NADCAP	AIRBUS (80-T)	Boeing	Bell Helicopter	Elbit Systems	Halliburton	IAI	MBD (Safran)	Moog	Parker	PWA	PWC	Rafael	Rolls Royce	Thales	UTAS	CESA	Woodward
1	Alodine (CCC)	✓	✓		✓	✓	✓		✓	✓	✓				✓		✓	✓	✓	✓
2	Passivation	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	✓		✓	✓	✓	✓
3	NDT - FPI	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓
4	NDT - MPI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓
5	Cadmium	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓				✓	✓	
6	Hard Chrome	✓	✓				✓	✓	✓	✓	✓	✓	✓					✓	✓	✓
7	Chromic Acid Anodizing	✓	✓		✓	✓	✓		✓	✓	✓		✓		✓		✓	✓	✓	✓
8	Sulphuric Acid Anodizing	✓	✓			✓	✓		✓		✓		✓	✓	✓		✓	✓		✓
9	Hard Anodizing	✓	✓				✓		✓		✓						✓	✓		✓
10	Boric - Sulphuric Acid Anodizing	✓	✓		✓															
11	Zinc Nickel	✓	✓						✓		✓		✓							
12	Electroless Nickel	✓	✓				✓													✓
13	Paint	✓	✓	✓	✓		✓		✓		✓		✓		✓		✓	✓		✓
14	Heat Treatment	✓						✓												
15	DFL / SFL	✓	✓		✓		✓		✓				✓					✓		

**We are LCS (Laboratory Control at Source) approved by
Pratt & Whitney America**

NADCAP APPROVED LINES



PROCESS NAME	Tank dimension in mm		
	L	W	H
Chromic Acid Anodizing	700	1250	1300
Sulphuric Acid Anodizing	700	1000	1300
Hard Anodizing	400	1250	1300
Chemical Conversion Coating	700	1000	1300
Dichromate Sealing	700	1250	1300



PROCESS NAME	Tank dimension in mm		
	L	W	H
Cadmium Plating	950	800	1500
Hard Chrome Plating	800	800	1500
Passivation	600	600	600

SPECIAL PROCESSES



Landing Gear pistons and cylinders for Airbus A350, A330/340, A320neo, A380 & Boeing 787 programs

FINISHING/PLATING



Buffed Finish



Gold Plated



PVD Coating



Magnetic Deburring + PVD



Electroless Nickel Plating



Glass Bead Finish

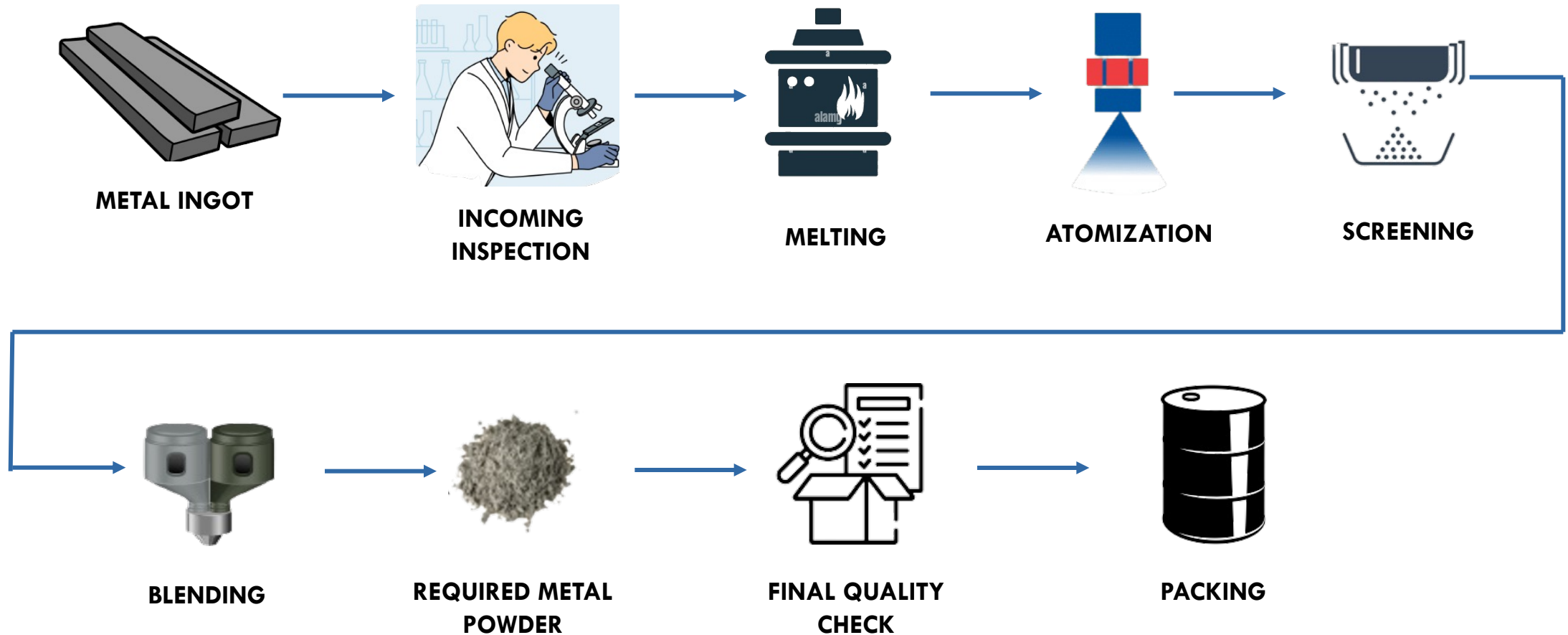


Zinc Blue Passivation

METAL POWDER CAPABILITY



POWDER MANUFACTURING – GAS ATOMIZATION



2800 tons of melt capacity of
per annum

A

**Vacuum melting – Hot Inert
Argon/ Nitrogen** gas
atomization

B

ASB features enhance the
Powder Sphericity

C

Capable to handle **Ferrous alloys,
Nickel and Cobalt** super alloy
powders

D

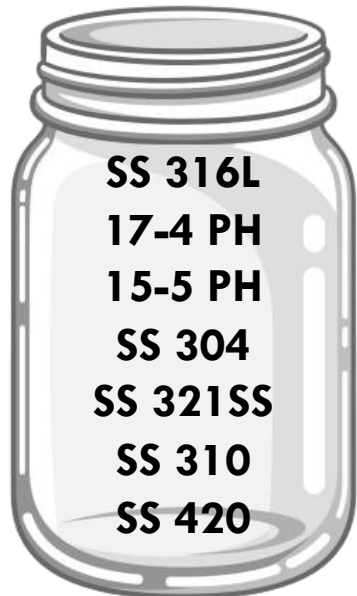
Metal powder for different
applications (**MIM, AM, HIP & TS**)

E



POWDERS IN OUR BASKET

STAINLESS STEEL



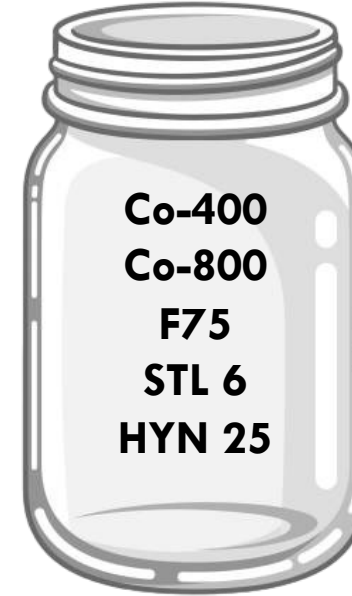
ALLOY STEEL



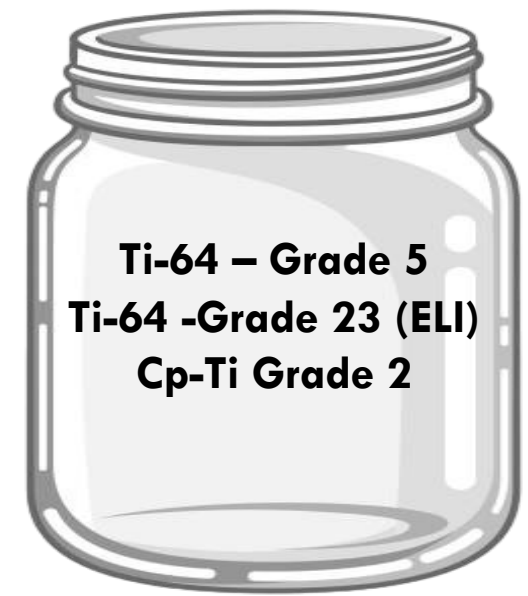
NICKEL ALLOYS



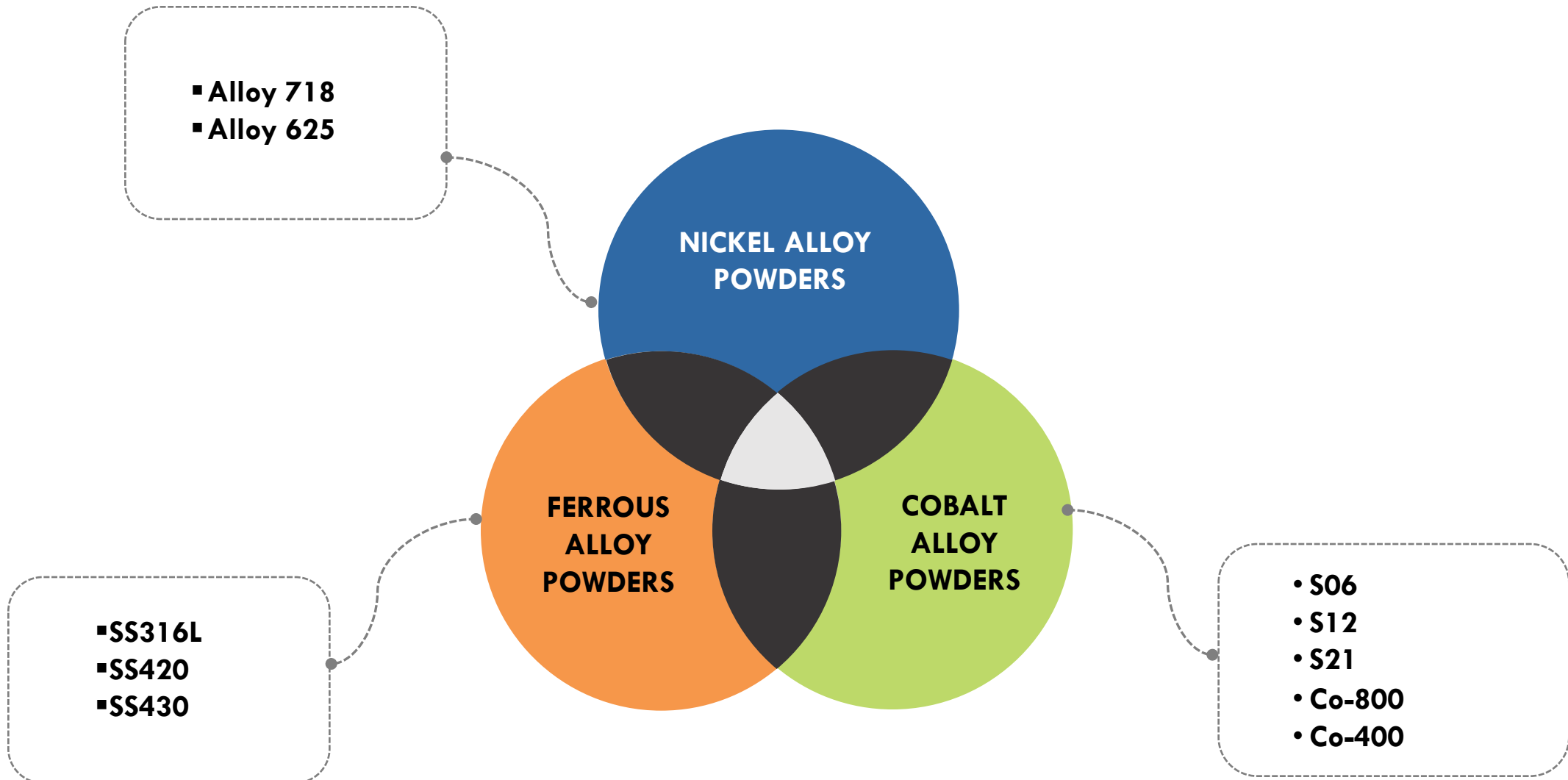
COBALT ALLOYS



TITANIUM ALLOYS

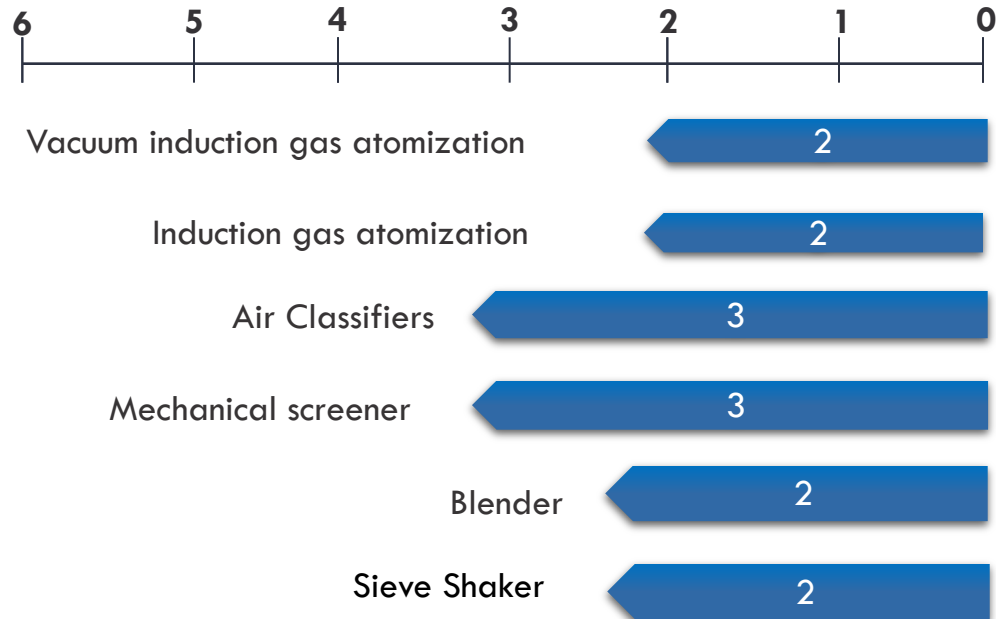


POWDERS IN OUR BASKET - THERMAL SPRAY

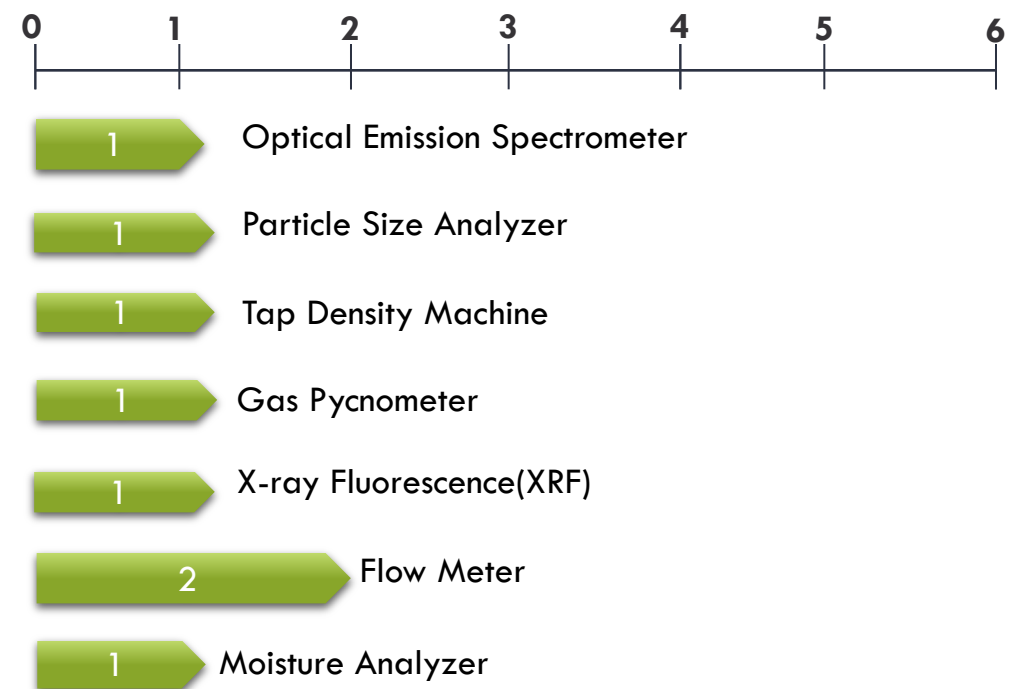




MACHINERIES



INSPECTION EQUIPMENTS



3D PRINTING TECHNOLOGIES OFFERED



**Binder jetting
Technology(BJT)**



**Laser Powder
bed fusion
(LPBF)**



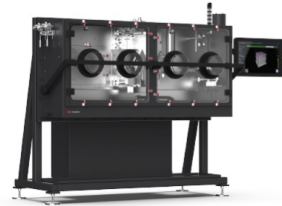
**Lithography-based
Metal Manufacturing
(LMM)**

3D PRINTING CAPABILITY

PROTO-SAMPLES, LOW VOLUME PRODUCTION



 Innovent+



 P1



 LAB 35



 Intech SF1 (PBF)

LOW TO MEDIUM VOLUME PRODUCTION (BINDER-JET)



 25 PRO



 SHOP PRO



 S100

LOW TO MEDIUM VOLUME PRODUCTION (LPBF)



SLM-280



SLM-500

BINDER-JETTING(BJT) MACHINE PORTFOLIO



Model: Ex One Innovent+

Build Box Size: 65 X 160 X 65 mm

Current Material options: M2, SS 17-4PH, SS 316, HK-30

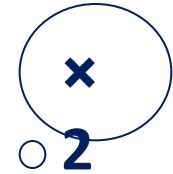
Future material options: SS-420, H13, S7, 4605, WC



Model: Ex One 25PRO

Build Box Size (L x W x H): 400 X 250 X 250 mm

Material options: M2, SS 316



Model: HP Metal Jet S100

Build Box Size (L x W x H): 430 X 309 X 140mm

Material Options: M2, SS316, SS17-4 PH, S7, 4140



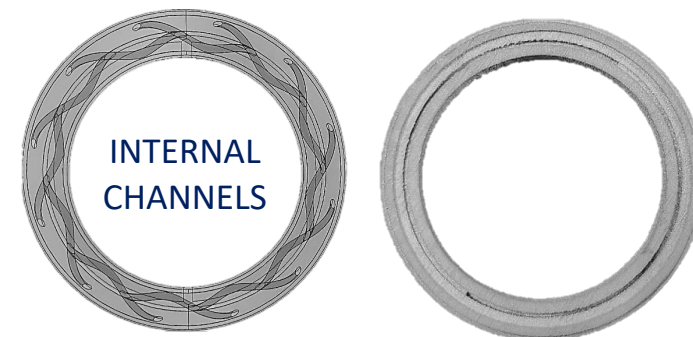
CONFORMAL COOLING INSERTS

Why BJT ?

1. Faster than conventional laser 3D printing
2. Printed without any support structure, thereby eliminates secondary operations
3. Medium batch quantities production

Key features:

- Minimum feature size: 0.7 mm
- Tolerance Achievable: $\pm 2\%$ of Nominal
- % Theoretical Density: 99%
- Surface finish along X & Y Axis: 3-5 μm (Ra)
- Surface finish along Z Axis: 5-7 μm (Ra)



LASER POWDER BED FUSION(LPBF) MACHINE PORTFOLIO



SLM
SOLUTIONS



Model: SLM 280

Build Box(L x W x H): 280 X 280 X 365mm

Material Options: SS-316, SS17-4 PH, MS-1,
IN625, IN718, SS 446, Ti-6Al-4V ELI

 **Intech**
additive solutions



Model: Intech iFusion SF-1

Build Box (Dia x H): Ø150 X 180mm

Material Options: SS-316, SS17-4 PH, MS-1,
MS-1、 Alloy 625、 Alloy 718

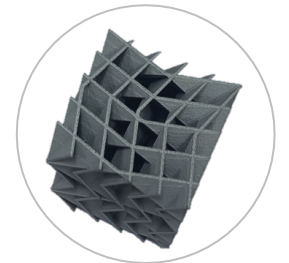


Why LPBF ?

1. For rapid prototype development
2. Low volume production
3. Direct sintering of parts

Key features:

- Minimum feature size: 0.5 mm
- Tolerance Achievable: $\pm 2\%$ of Nominal
- Surface finish along X & Y Axis: 5-7 μm (Ra)
- Surface finish along Z Axis: 8-10 μm (Ra)





incus

Model: Incus Hammer Lab 35

Build Box(L x W x H): 56 x 89 x 120 mm

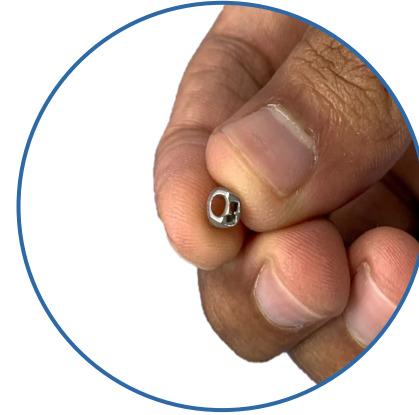
Material Options: SS 316, SS17-4 PH, 99% copper

Why LMM ?

1. Exceptional surface aesthetics - Ra 2 μ m after sintering
2. Low wall thickness parts as low as 0.2mm
3. Small intricate parts weighing as low as 0.5g.

Key features:

- Tolerance capability: ± 2 % of Nominal
- Minimum Feature Size: 0.1 mm
- % Theoretical Density: 98%
- Surface finish along X & Y Axis: 2 μ m (Ra)
- Surface finish along Z Axis: 2.5 μ m (Ra)



New Division

INDO-ASP is an integral part of INDO-MIM

We are now ready to take up challenges and provide the best industrial automation solution for customer pain points through our innovative approach

Cost-effective solution

Business verticals

Robotics

Vision system

Special purpose machine

Industry 4.0

Strength

A team of 40 people is working in the Automation Department

The total number of project executions is 150+

We have developed a strong vendor base for hardware supply.

I have experience in the execution of overseas projects

Key projects executed

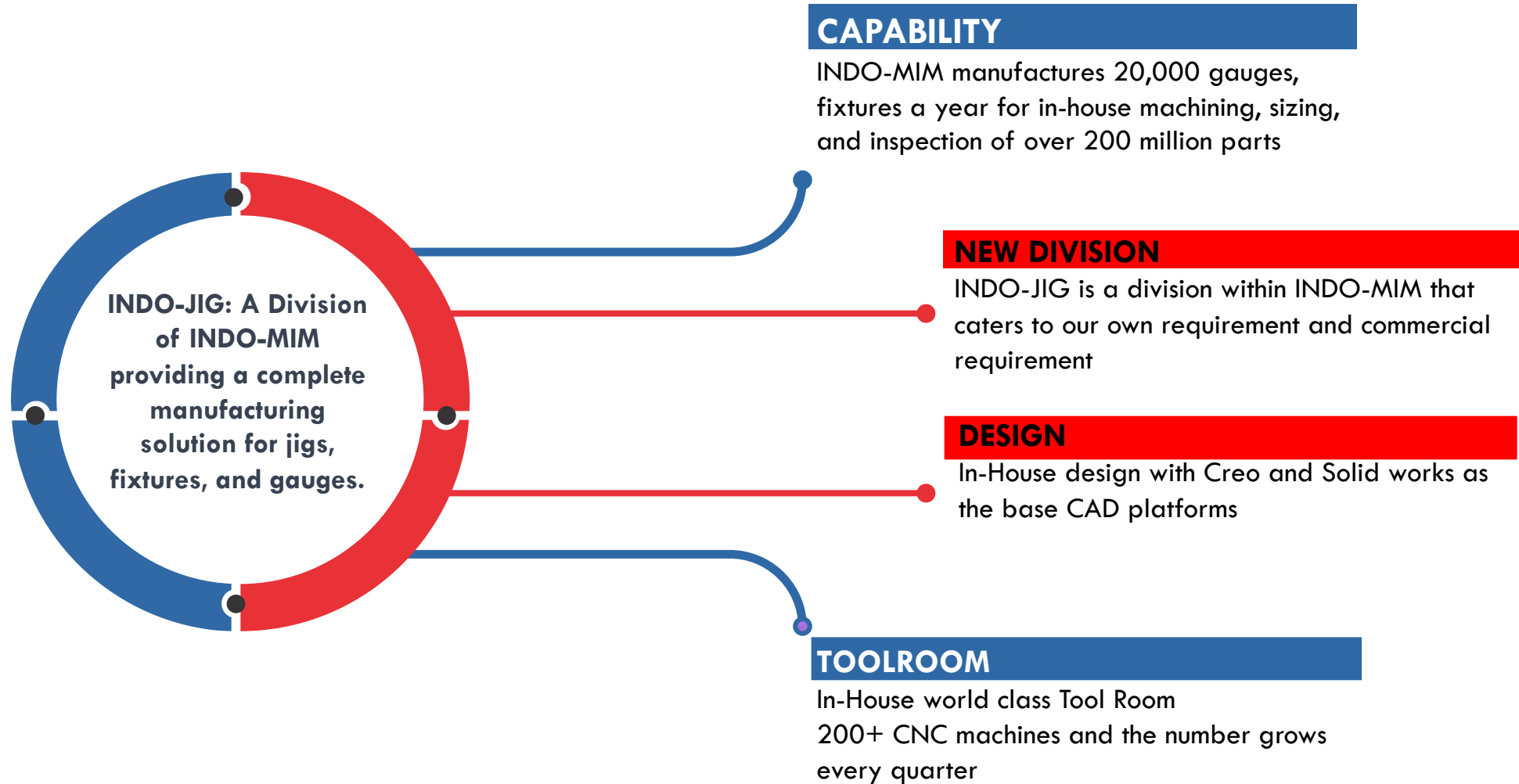
- A. Installed more than 100+ robots for pick and place, and Machine tending application
- B. GOM inspection cell
- C. Glass disc inspection system
- D. Angle inspection m/c
- E. Sigma mixer m/v
- F. IoT implementation for CNC, VMC, Furnaces for live data tracking and storage

Why INDO-ASP?

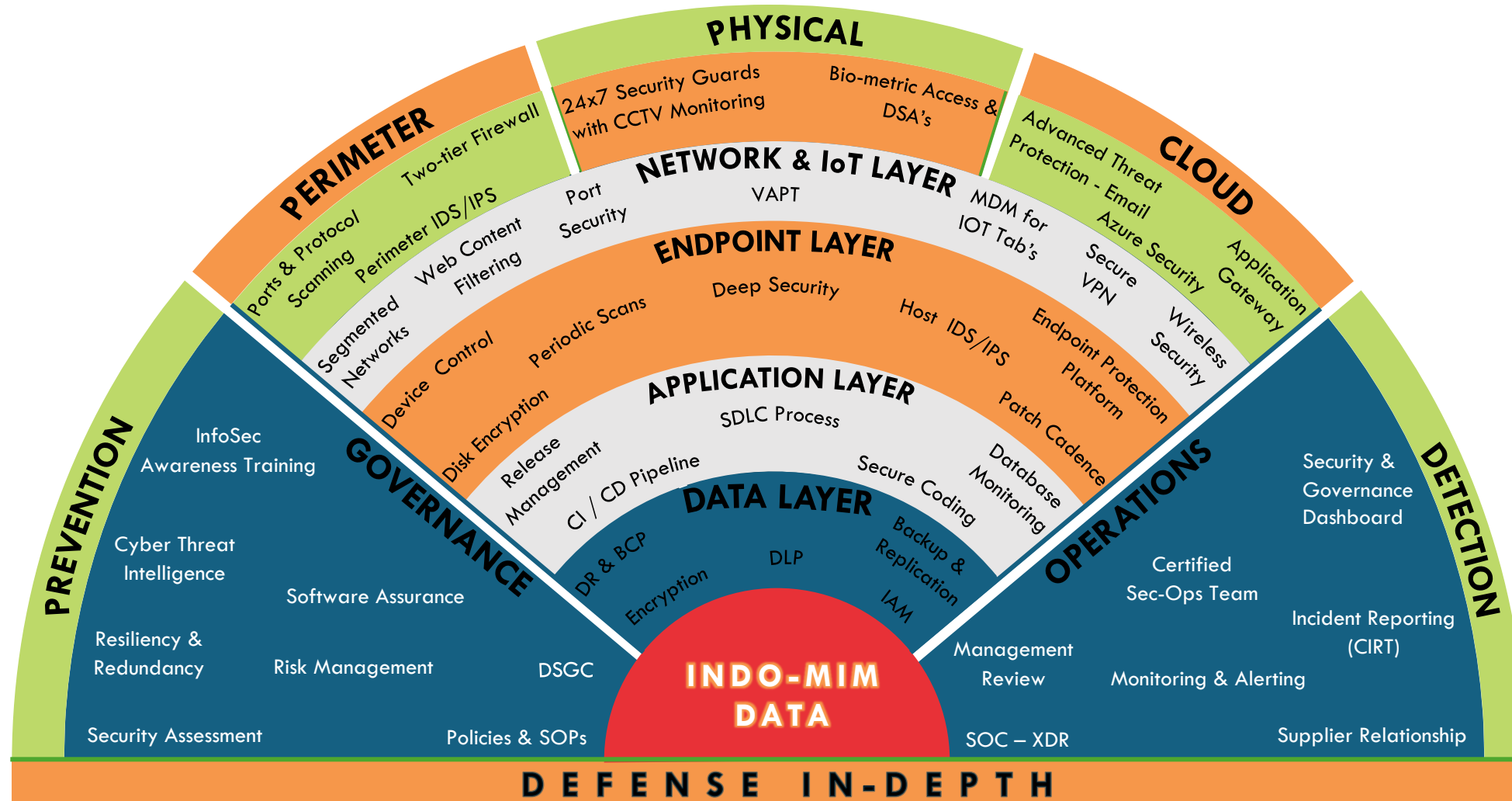
We have a highly experienced team having 4500+ man-days of experience in industrial automation.

Our unique engineering approach offers the right technologies without compromising on quality and standards

We provide complete **1-year service support** on our products to customers,



INFORMATION SECURITY – LAYERED APPROACH





Smart & Connected Manufacturing

INDO-MIM AWARDS



**INDO-MIM won the “ALL INDIA FIRST PRIZE”
in Productivity Award, at the
“National Productivity Summit 2020”**



**“INDO-MIM won 5
Awards of Distinction in 2021”**



**“INDO-MIM won 3 Grand Prizes and
3 Award of Distinction in 2022”**



**“INDO-MIM won ‘Raksha
Niryat Ratna’” in 2022**



**“INDO-MIM won 2 Distinction
and 1 Grand Prize in 2023**



**“INDO-MIM won 2
Awards of Distinction in 2024”**



**“INDO-MIM won 2 Grand
Price and 1 Distinction in 2025”**

EMPLOYEE WELLBEING



Employee benefits

- Group term insurance-5 times of annual CTC
- Medical Emergency advance of 2 months' Gross salary recovered in 18 months
- Annual and performance bonus



Employee Recognition

Competitions and awards:

- Sports activities
- Quality month
- Environment month
- Safety month



Celebrations

Birthdays, Festivals, Sports Days,
Cultural activities, Women's Day,
Quality month, Environment month



Employee training

Technical skills and soft skills enhancement training.



Employee work life balance

- “Quality of Life” special workshop on life lessons for newly married couples
- Work life enrichment workshop for employees focusing on work life balance



- In May 2020, the team came up with an idea of creating a mini-forest within the factory to offset CO₂
- 5000 saplings were planted inside premises which is covering area 12.7K sq. ft area
- Now it has grown into a mini forest and helps to offset the carbon footprint
- Progressively, the area is developed with rich micro and macro-fauna.
- CO₂ e reduction : 110 MT/annum



- 96 % of our energy consumption is achieved through green energy



WASTEWATER RECYCLING STRATEGY

Zero Liquid Discharge Plant – 20 KLD

1. Maximizing water recovery and removes many environmental issues
2. ZLD system employs advance vacuum distillation technology.
3. The treated water is being sent back for process

Sewage Treatment Plant – 200 KLD

1. Sewage is treated in 200 KLD Plant with MBR technology.
2. The treated water is sent for further treatment to softener plant.
3. After the treatment, treated water is used for:
 - All cooling towers – 0.15 million liters
 - Gardening
 - Flushing

Rainwater Harvesting

1. Rainwater is collected from roof and sent to micron filters for final treatment
2. The treated water is used for domestic purpose
3. 32 Recharge pits are provided to increase ground water table



GENERAL / EXTERNAL



INDO-MIM group companies proudly support a variety of charitable organizations that share our vision of making a positive contribution to the society



Mid Day Meal Scheme

Through the local schools, INDO-MIM feeds over 2,500 students in the mid day meal scheme.



The Chivukula Wing

The Chivukula wing was built at the Bangalore Baptist Hospital Through Support from Mr. Chivukula. Annual contributions to support treatment needs for the disadvantaged have been provided.



Asha Foundation

INDO-MIM continues to support the Asha foundation in the fight against HIV/AIDS in India.



Deenabandhu & Vishranthi Trust

INDO-MIM extends its support towards rural education through the Deenabandu Trust. It also supports the welfare of the old and the orphans through the Vishranthi Trust.

CSR (HUNGER, EDUCATION & HEALTH)



WE ARE INDO-MIM

THANK YOU

Creating Value :

In-depth technical competence

International presence

Application and Industry Expertise

Long-term Relationships

www.indo-mim.com

MORE THAN 4000 HEARTS – ONE BEAT



www.linkedin.com



infohq@indo-mim.com



infous@indo-mim.com



infoeu@indo-mim.com



infocn@indo-mim.com



indomim@industree.asia