



Company Overview

Surana Group of Companies

Promoters: Shri. Devendra Surana



Established in **1978**, the Surana Group has grown into one of India's leading industrial houses with diversified interests across **Manufacturing, Metallurgy, Telecommunications, Solar, and Electricals**.

Built on **meticulous planning, clear vision, and long-term strategies**, the Group today commands a strong position among India's top corporate houses. With a **fixed asset base of over USD 100 million**, a **workforce of 1,500+**, and an **annual turnover of USD 300 million**, the Group continues to expand its legacy of trust, innovation, and excellence.

Bhagyanagar Magnesium Pvt. Ltd. (BMPL)

Founders: Shri. Advait Surana | Shri. Revanth Katta



Incorporated in **2023**, BMPL is India's pioneering initiative focused on **Magnesium & Aluminum High Pressure Die Casting (HPDC)** solutions for **Automotive, Aerospace, Defense, and EV industries**.

Backed by **in-house expertise** and **50+ man-years of experience** in magnesium processing, BMPL specializes in **lightweighting solutions**, delivering components that are **lighter, faster, and longer lasting**.

Our commitment to **Precision Engineering, Sustainability, And Innovation** ensures customers receive world-class quality with every product.





Surana Group Companies

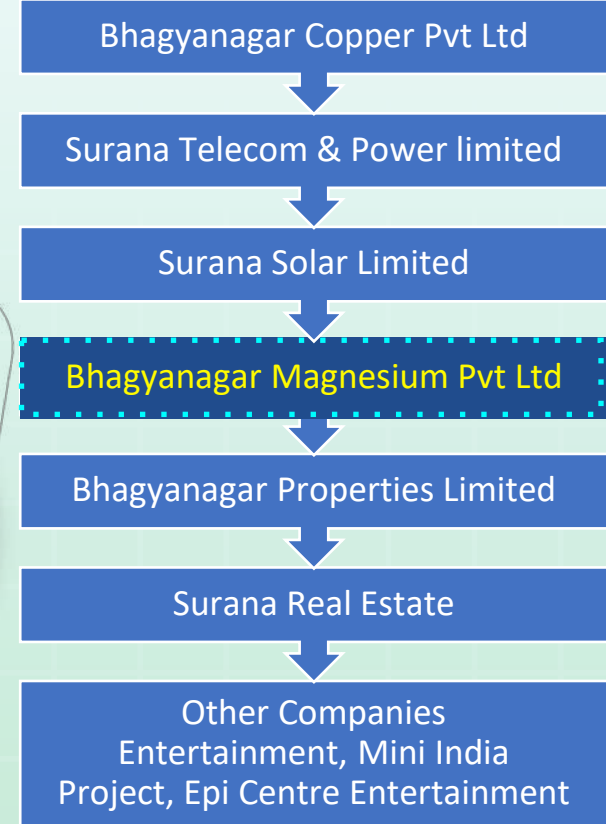
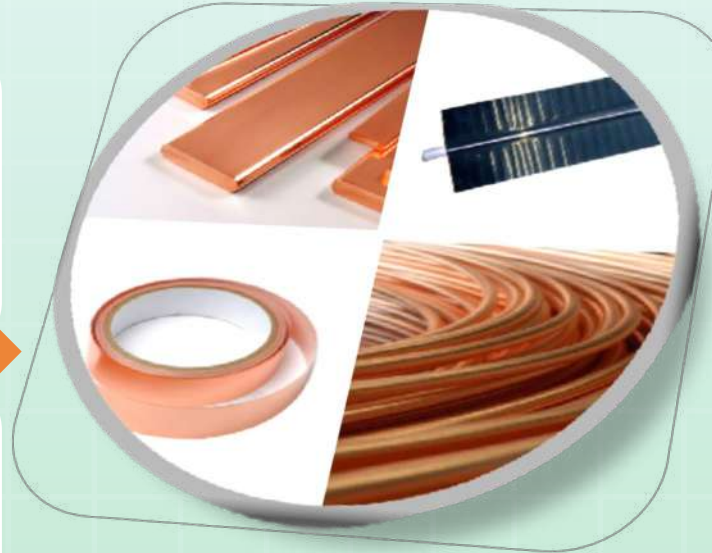
The Surana Group founded in 1978 is one of the country's leading industrial houses, focusing on the niche areas of Telecommunications, Materials and Electrical equipment

USD 300 Mn turnover with over 1500-member workforce

On track to achieve USD 500 Mn shortly

Bhagyanagar Copper is currently producing around 80 MT Per day of refined copper and copper-based products

The company has a state-of-the-art manufacturing facilities spread over 70 acres of land in Hyderabad city limits



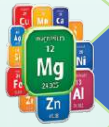
The company serves a diverse customers like HAL, Royal Enfield, Bajaj, Venus Appliances, Tega McNally, Ignetta Hole Graphic, L & T, Lucas TVS, Toshiba, Amar raja, REIL, Racold, V-Gaurd &, HBL



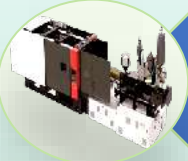


BHAGYANAGAR MAGNESIUM PVT LTD

A UNIT OF SURANA GROUP OF COMPANIES



We provide lightweight solutions to a global customers in the **Automotive, Aerospace, Defense, and Industrial** sectors.



BMPL is the only company in India planning to commission **Thixomolding** machines of 850, 500 tons in Jan 2026



In 2025, we commissioned India's largest magnesium die-casting machine, the **Yizumi 1650-ton, 400-ton model**.



Our team has over **50 man-years of collective expertise** in complex magnesium processing activities.



Our 40,000 sq. ft. production facility is fully integrated with solar energy for sustainable operations.





Vision & Mission



Vision

To enable a future where all modes of mobility are **lighter, faster, and more efficient**. We aim to achieve this by creating innovative **lightweight components** and products using **Magnesium-based alloys**. By doing so, we will become one of the top three global suppliers of magnesium products within the next five years



Mission

We are dedicated to **customer focus** and **innovation leadership**. Our mission is to serve as an industry leader in **Mg Thixo-molding**, extrusion, welding, and die-casting technologies (GDC & HPDC), delivering exceptional value to our partners worldwide.

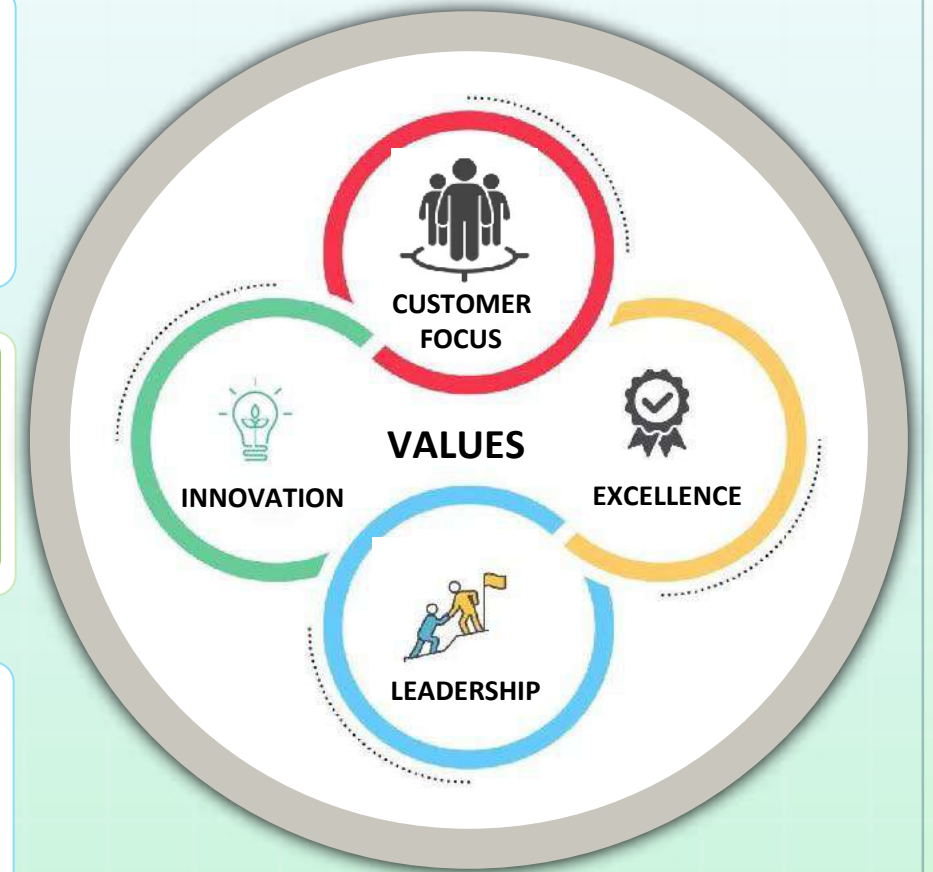


Objectives

Support Automotive Mfrs: Help OEMs achieve their **greenhouse gas (GHG) emission targets**.

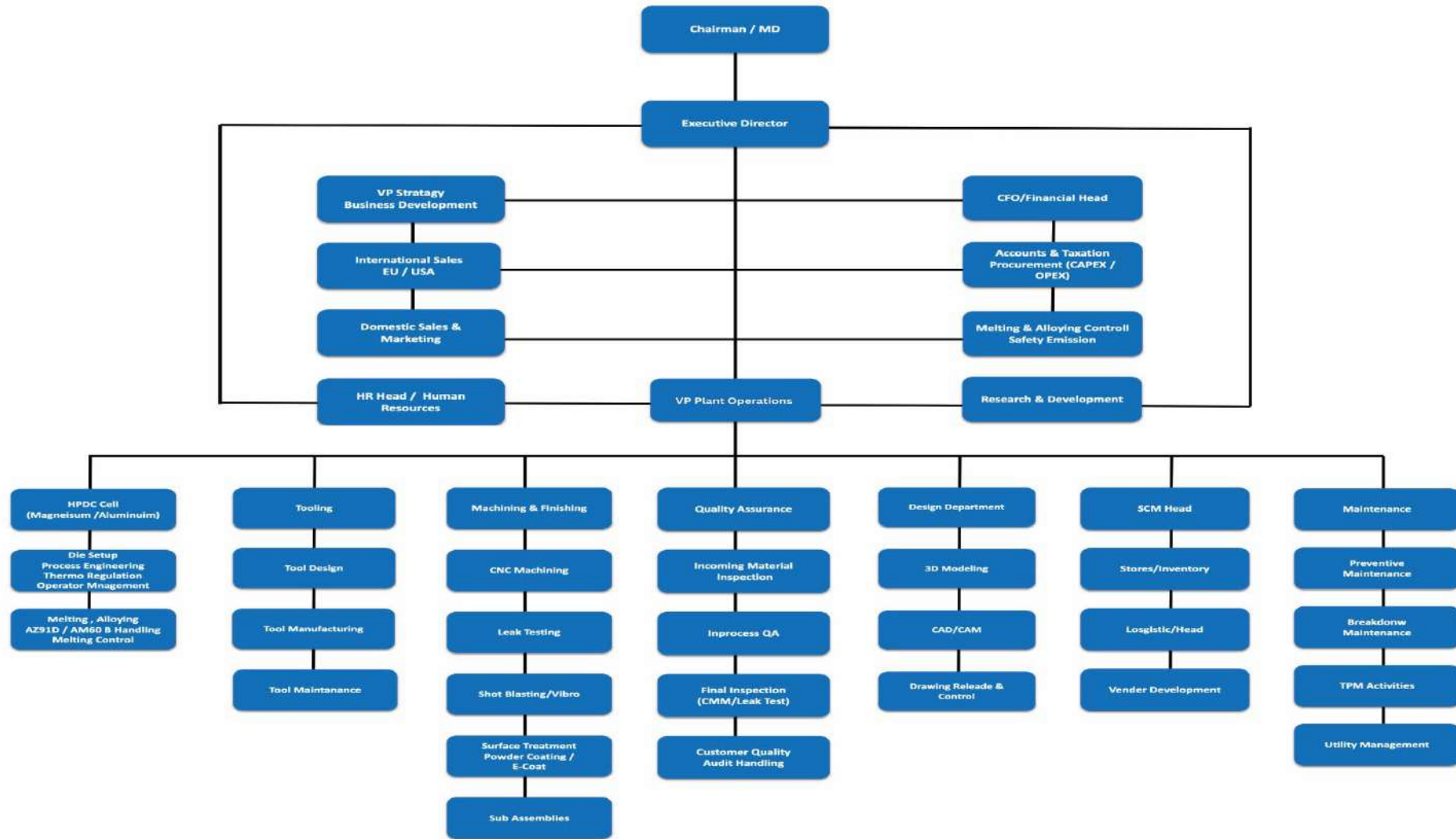
Enhance Vehicle Performance: Reduce fuel consumption and improve the performance of electric vehicles (EVs) by extending their range and alleviating **range anxiety**.

Ensure Cost-Effectiveness: Deliver cost-effective solutions through efficient and fully integrated operations.





Organisation Structure





BMPL Highlights

WHO WE ARE

- **BMPL** – Pioneering India's **next-generation magnesium technologies**: Thixomolding, Extrusion, and Welding.
- **First in India planning** to implement **Thixo Molding Machine** ranging from **500T to 1350 T** in **Jan2026**
- Commissioned a largest **1650T,400T Magnesium HPDC machine**
- Part of **Surana Group** with 45+ years of excellence in **manufacturing, metallurgy, and global engineering**.
- **Strong technical foundation** with **50+ man-years of collective expertise** in complex magnesium processing.

CORE COMPETENCIES

- **India's only company** advancing **Magnesium Thixomoulding, Extrusion & Welding technologies**.
- **13 magnesium alloys indigenized** for **automotive, aerospace & EV applications**.
- **Rapid prototyping expertise** – magnesium sand castings up to **150 kg**.
- **Implementing Thixomoulding machine** for 300K capacity in Phase 1, additional 300K capacity in Phase 2 (Refer slide 14).
- Established HPDC capacity of 600K parts/year; **CNC machining capacity of 198K** parts/year, ensuring precision for automotive and EV components
- **In-house Testing & Inspection facilities** – Spectrometer, CMM, mechanical testing; complemented by **qualified partner labs**.
- **Comprehensive design support** for dies, tooling & equipment – enabling **faster development with a strong technical base**.
- **End-to-end capabilities** – die design, tool manufacturing, CNC machining, surface treatment & coating under one roof.
- **Structured plant layout** – 40,000 sq. ft. solar-powered, integrated campus.
- **Complete readiness for Aerospace, Defense, Automotive, Electronics & EV applications**.

Why BMPL

- **Lightweighting Expertise** – From design optimization to rapid prototyping & component delivery.
- **Integrated Solutions** – *One-stop partner* from **concept to component**.
- **Global Quality Standards** – ISO 9001, ISO 14001, ISO 45001 (certified); IATF 16949 / AS9100 in progress; VDA 6.3 training in progress.
- **Sustainability Leadership** – Green 10-acre campus with **solar-powered production** and **closed-loop recycling** systems.

VISION

To be India's **No.1 partner for MAGNESIUM & LIGHTWEIGHT metal solutions**, driving innovation in mobility, energy, and advanced engineering.

10 Acre Campus



Powered by Solar





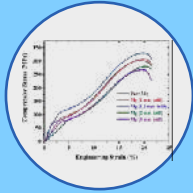
Magnesium Introduction

Magnesium is often referred to as a **GREEN METAL** of the 21st century because of its environmentally friendly properties and potential for **sustainable industrial** use.



LIGHTER THAN ALUMINIUM:

Up to 33% lighter – more efficient EV design



HIGHER STRENGTH – TO - WEIGHT:

Better crash safety and structural strength

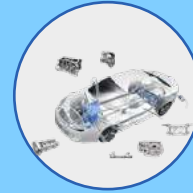


RECYCLABILITY:
Environmentally friendly and supports circular economy



IMPROVED FUEL EFFICIENCY :

Reduced vehicle weight leads to higher energy efficiency



IDEAL FOR EV COMPONENTS:

Thermal & EMI shielding, corrosion resistance



BEST FOR EVS:

Handlebar housing, gear boxes, Battery enclosures, Swing Arm and frames.



ALIGNED WITH INDIA'S VISION 2030:

Green mobility + local magnesium production

EV vehicles is all about sustainability, clean, efficient energy utilization, Mg in EVs makes the whole EV concept greener, biocompatible and has a reduced carbon footprint



Aluminium Vs Magnesium Comparison

| PROPERTY | MAGNESIUM | ALUMINIUM | STEEL |
|------------------------------|--------------------------------|------------------------------|--------------------------|
| Density (g/cm ³) | 1.74 | 2.7 | 7.85 |
| Machinability | Excellent | Good | Moderate |
| Recyclability | High with negligible pollution | High with moderate pollution | High with high pollution |
| Cost (Relative) | low | Low | Low |

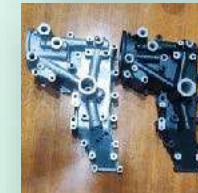
| PROPERTY / ALLOY | ADC12 (Al) | AZ91D (Mg) | AM50 (Mg) | AM60 (Mg) | AS41 (Mg) | AJ62 (Mg) |
|------------------------------|------------|------------|-----------|-----------|-----------|-----------|
| Density (g/cm ³) | 2.74 | 1.81 | 1.8 | 1.8 | 1.75 | 1.81 |
| Yield Strength (MPa) | 165 | 160 | 140 | 130 | 160 | 175 |
| UTS (MPa) | 300 | 230 | 225 | 230 | 250 | 270 |
| Elongation (%) | 1-2 | 3 | 7 | 8 | 4 | 6 |
| Thermal Conductivity (W/m·K) | 96 | 68 | 80 | 85 | 75 | 70 |
| Corrosion Resistance | ★★★★☆ | ★★★★☆ | ★★★★☆ | ★★★★☆ | ★★★★☆ | ★★★★☆ |
| Impact Energy (J) | 2-4 J | 6-8 J | 14-16 J | 15-18 J | 10 J | 11 J |

We have developed new proprietary alloy having high thermal conductivity.

CASE STUDY



Al Wt.: - 2.85 Kgs
Mg Wt.: - 1.85 Kgs
Weight Reduction 35%



Al Wt.: - 4.20 Kgs
Mg Wt.: - 2.85 Kgs
Weight Reduction 32%



Al Wt.: - 2.20 Kgs
Mg Wt.: - 1.50 Kgs
Weight Reduction 31.81%





Advantage of Mg

| PARAMETER | MAGNESIUM ALLOYS | ALUMINUM ALLOYS |
|----------------------|---|-----------------------------------|
| Die Material Erosion | Low (Less Aggressive On Die) | Higher (Due To Higher Si Content) |
| Die Life | 100,000 - 150,000 Shots | 100,000 Shots |
| Die Maintenance Cost | Lower (Less Wear And Sticking) | Higher (Erosion And Soldering) |
| Initial Die Cost | Similar Or Slightly Higher (Thermoregulation) | Higher (Erosion And Soldering) |
| Initial Die Cost | Similar Or Slightly Higher (Thermoregulation) | Similar Or Slightly Higher |
| Thermal Fatigue Risk | Lower (Lower Pouring Temp) | Higher (Higher Melting Temp) |
| Cycle Time | Faster (Solidification Rate High) | Slower |

How?

Magnesium Alloys are cheaper when the cost to weight ratio is considered.

Die cost per shot is reduced by 50%, since Mg dies easily work for 1.0 to 1.5 lakh shots.

Machining time for mg alloys is 20 to 30 % faster than aluminum.

Cycle time for mg alloys casting is faster than al alloys because of better fluidity and rapid solidification



4X faster machining than Aluminium

| MATERIAL | COST PER KG | 33% WEIGHT REDUCTION |
|------------------|-------------|----------------------|
| Mg Alloy (AZ91D) | 300 | 210 |
| ADC12 (Al Alloy) | 220 | 220 |

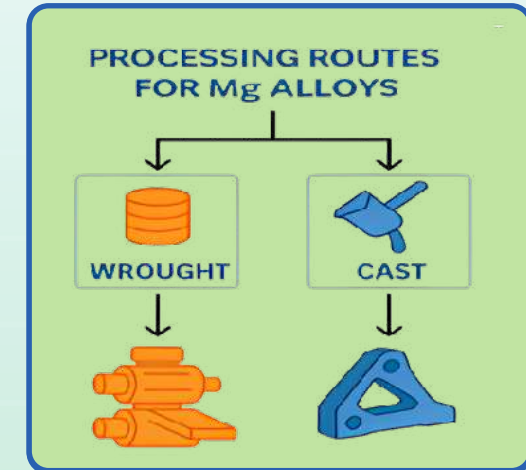




Magnesium Alloys & Series

Magnesium alloys are lightweight materials made by combining magnesium with other elements (Al, Zn, Mn, etc.) to improve strength, corrosion resistance, and workability.

| MAGNESIUM ALLOYS BASED ON ASTM STANDARD | | |
|---|----------------------|--|
| ALLOY SERIES | MAIN ELEMENTS | KEY FEATURES & APPLICATIONS |
| AZ | Aluminium, Zinc | Most common, Strong, Corrosion Resistant |
| AM | Aluminium, Manganese | Good corrosion resistance, Strength |
| ZK | Zinc, Zirconium | High strength, Aerospace-grade |
| QE | Rare Earths | Good high-temp & Creep resistance |
| WE | Yttrium, Rare Earths | Excellent at high temperatures |
| HM | Heavy Rare Earths | Best Thermal & Structural stability |



| WROUGHT ALLOY | |
|---------------|--|
| AZ31 | Excellent formability, weldable |
| ZK60 | High strength, good toughness |
| WE43 | High-temp strength, corrosion resistance |
| AZ80 | Good strength, moderate formability |

| CAST ALLOYS | |
|-------------|--|
| ALLOY | KEY FEATURES |
| AZ91D | Excellent castability, Good Corrosion Resistance |
| AM60 | Good ductility, Energy absorption |
| AE44 | High thermal stability, Creep resistance |
| AS41 | High-temp performance, Creep resistance |





ADC12 vs AZ91D – Technical Comparison Sheet 1

| Property / Feature | ADC12 (Aluminium Alloy) | AZ91D (Magnesium Alloy) | Typical Test Values |
|---|--|--|--|
| Density | ~2.74 g/cm ³ | ~1.81 g/cm ³ | ADC12: 2.72–2.75 / AZ91D: 1.80–1.82 |
| Ultimate Tensile Strength (UTS) | ~310 MPa | ~230 MPa | ADC12: 280–320 MPa / AZ91D: 220–250 MPa |
| Yield Strength (0.2% offset) | ~160 MPa | ~160 MPa | Both ~150–170 MPa |
| Elongation (% strain) | ~1–2% (low ductility) | ~3–7% (better than Al) | ADC12: 1–1.5% / AZ91D: 3–7% |
| Hardness (Brinell) | ~80–100 HB | ~60–80 HB | ADC12: ~85 HB / AZ91D: ~63 HB |
| Fatigue Strength (10⁷ cycles) | ~100 MPa | ~95 MPa | ADC12: 95–105 MPa / AZ91D: 85–95 MPa |
| Thermal Conductivity | ~96–120 W/m·K | ~60–70 W/m·K | ADC12: ~100 W/m·K / AZ91D: ~65 W/m·K |
| Coefficient of Thermal Expansion (CTE) | ~22–23 μm/m·K | ~26–27 μm/m·K | ADC12: 22 μm/m·K / AZ91D: 26 μm/m·K |
| Corrosion Resistance | Good (with natural oxide layer, better with anodizing) | Moderate (requires surface coatings like e-coat, anodizing, or conversion coating) | Test in salt spray: ADC12 > 240 hrs / AZ91D ~120–150 hrs without coating |
| Creep Resistance (150 °C) | Better than Mg | Moderate (creep issues above 120–150 °C) | ADC12: stable / AZ91D: risk of creep |
| Machinability | Moderate (higher tool wear) | Excellent (easy cutting, low tool wear) | Cutting speed: ADC12 ~150 m/min / AZ91D ~250 m/min |
| Casting Ability (HPDC) | Excellent – thin walls down to 2 mm possible | Superior flow, can fill <1.5 mm wall sections | Flow length test: AZ91D ~15% better than ADC12 |
| Damping Capacity | Moderate | High – excellent NVH absorption | Damping ratio: ADC12 ~0.01 / AZ91D ~0.05 |
| Ignition Risk | Very Low | Higher in powder/melt (>600 °C ignition) | Not a risk in solid parts |





Corrosion Protection Efficiency Of Surface Treatment

Coating processes for Mg components and their benefits



PASSIVATION
Removes contaminants, enhances oxide layer for corrosion protection

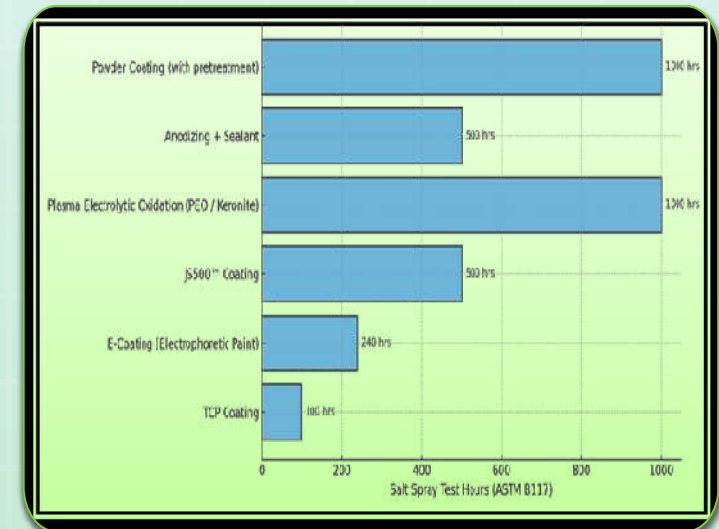
CONVERSION COATING
Improves paint adhesion, enhances corrosion resistance (pre-treatment)

CED COATING
Uniform coverage even in complex parts, excellent corrosion resistance

POWDER COATING
Uniform surface finish, excellent corrosion protection

ANODIZING (PEO)
Hard ceramic-like surface, high thermal and wear resistance

Various coatings and their salt spray test





Compatible & Non Compatible Material For Mg Die Castings

| Compatible materials | Non-compatible materials |
|---|---|
| Aluminum 5xxx and 6xxx series Tin Zinc Plastics and polymers | Steel and stainless steel Copper Nickel Titanium Selected aluminum alloys (e.g., 2xxx and A380) |

Poor Design – Flat Surface

Electrolyte accumulates around bolt.

High risk of corrosion due to water pooling.

Improved Design – Drainage Path

Sloped surface allows water runoff.

Reduces corrosion risk by preventing standing moisture.

Poor Design – Washer Pocket Trap

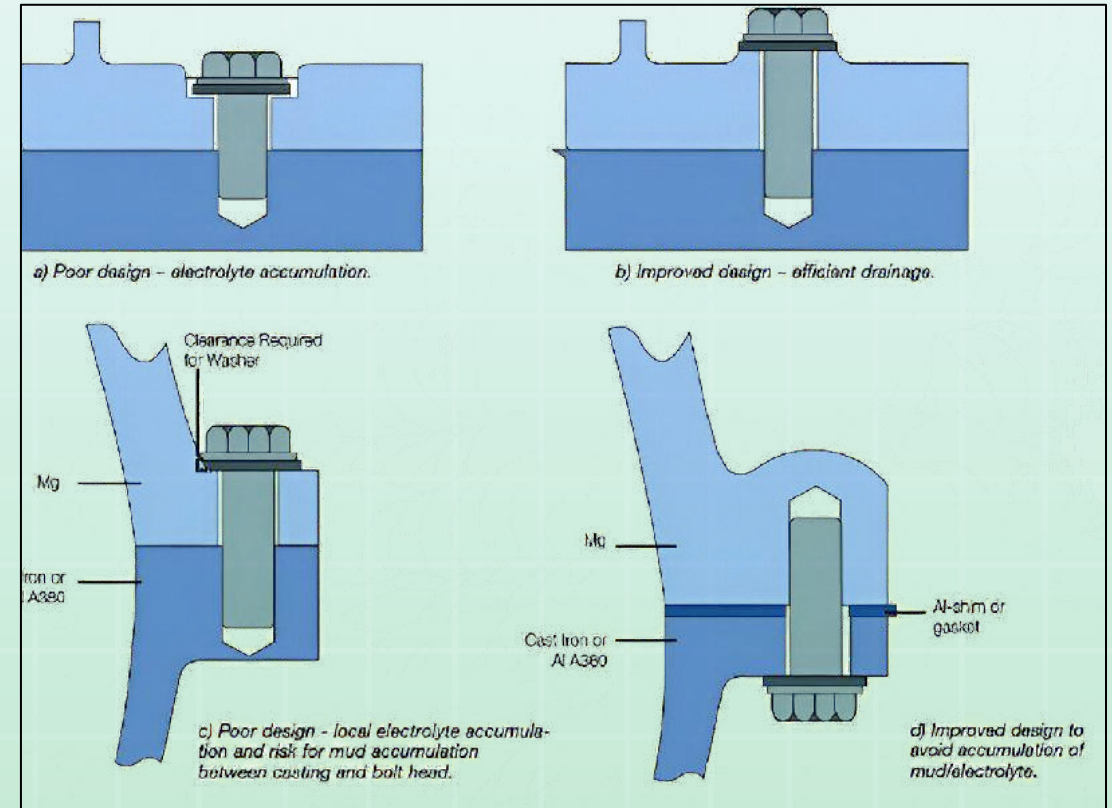
Gaps trap mud/moisture under bolt head.

Promotes crevice corrosion and galvanic reaction.

Improved Design – Isolated Interface

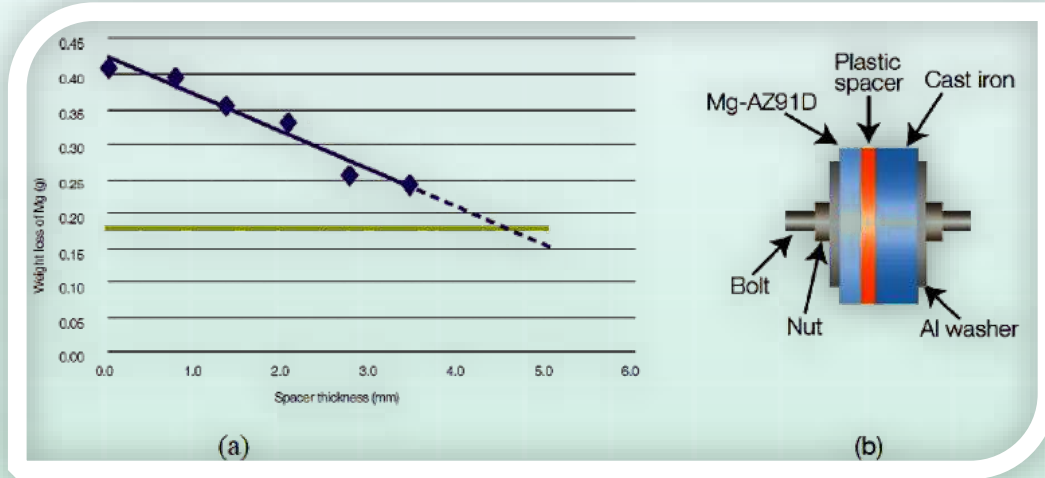
Gasket or Al-shim prevents metal contact.

Avoids electrolyte accumulation & galvanic coupling.





Protecting Mg alloy joints : Importance of Spacers and Washers



Spacer thickness plays a key role in reducing galvanic corrosion of Mg-AZ91D.



Higher spacer thickness leads to lower magnesium weight loss.



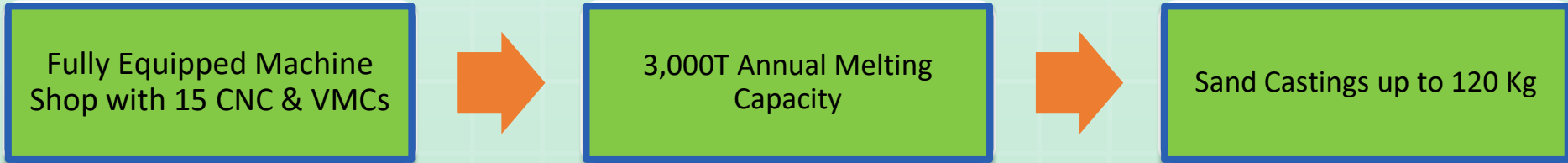
A plastic spacer effectively insulates Mg from cast iron, breaking the corrosion path.



Using Al washer and proper isolation ensures joint durability and corrosion resistance



Concept to Component Partner for Light- Weighing Solutions

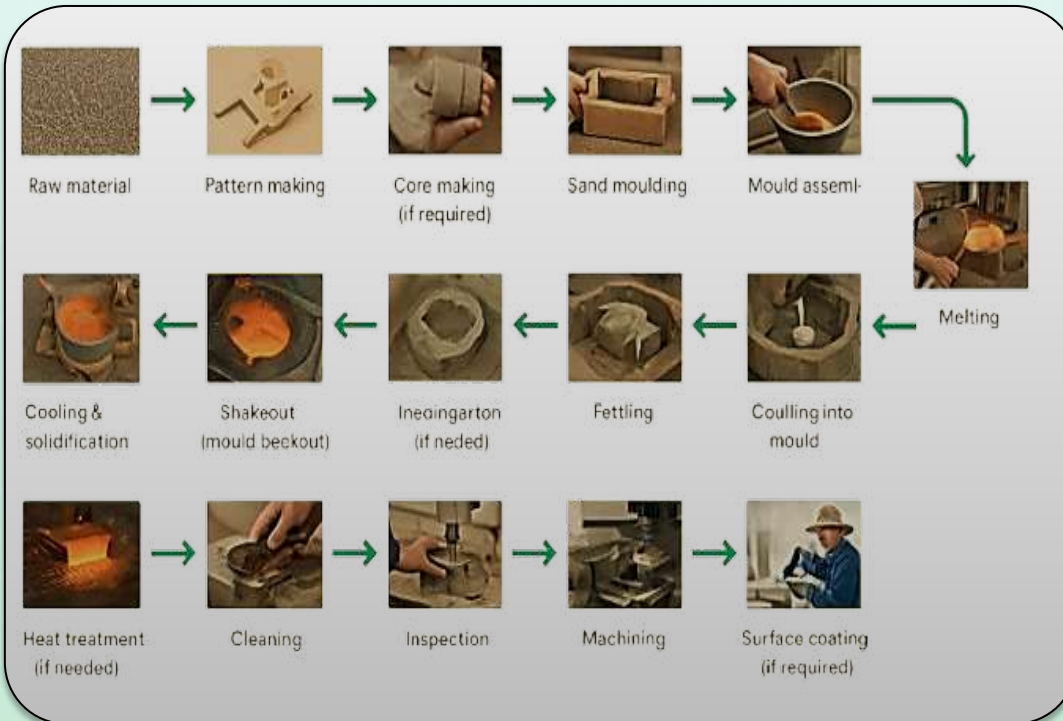


Recycled alloy use (In-house) – only internal runners/returns, revalidated with spectroscope, not external scrap.

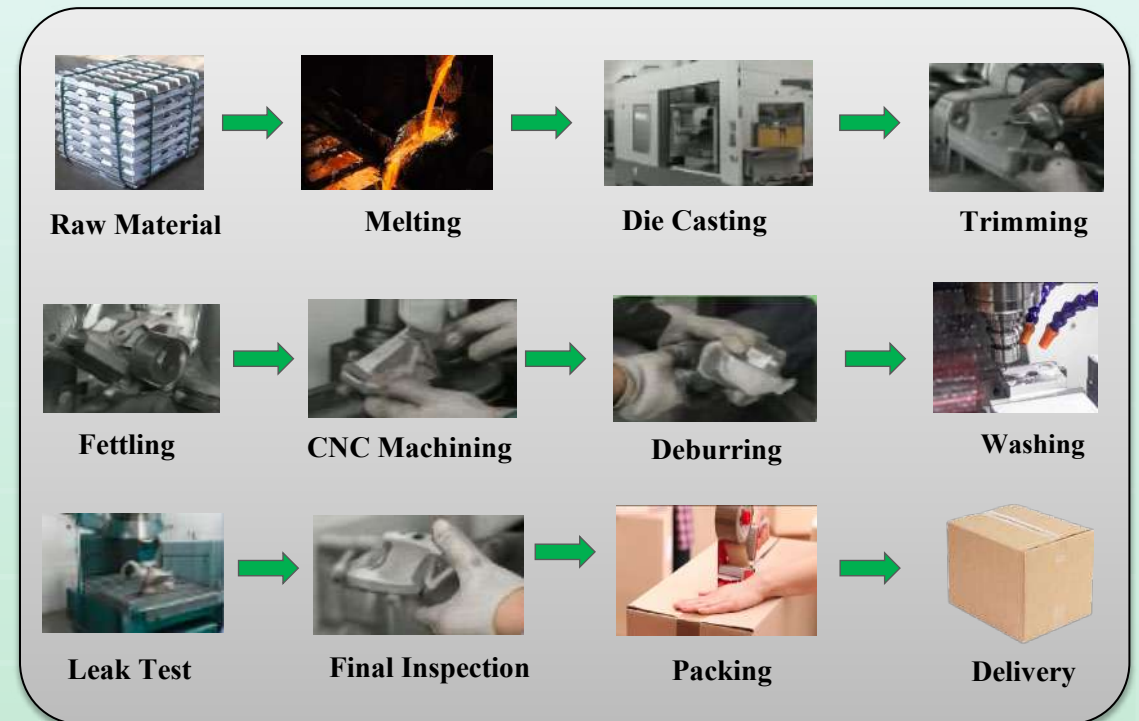


Current Manufacturing Process

Magnesium SAND Casting Process



Magnesium HPDC Process Flow



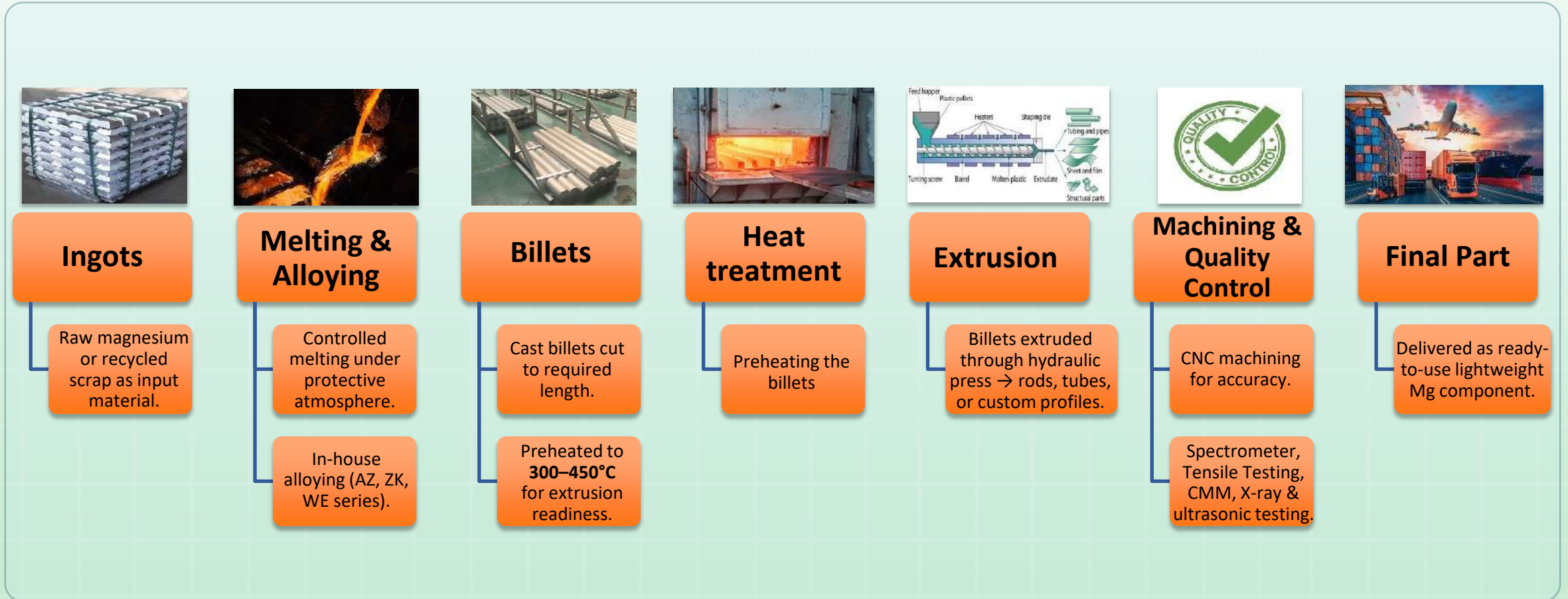


In House Mg Recycling & Alloying Process





New Extrusion Facility Plan (2026 Q2-Q3)





Infrastructure



YIZUMI 1650T HPDC (Servo Motor)



YIZUMI 400T HPDC



CNC Machine Shop (Clean Room Environment) with 5 Machines (4th axis 3M & 3rd Axis 2M)



Electronica CMM



In-house Alloying, Spectro Check



EDM - Sand Blasting -Multi Cut - Tapping Machines



Corporate Office located inside Plant

#startupindia



In-House Tool Room

IN-HOUSE EQUIPMENT:

- **Milling Machine (5VM):** High-precision machining for complex components
- **CNC Lathes:** Versatile turning operations with tight tolerances
- **Drill Presses :** Efficient drilling for prototypes and production parts
- **CNC EDM Machine:** Accurate wire-cutting and shaping for intricate designs
- **Measuring & Testing Instruments:** Comprehensive inspection for quality, accuracy, and compliance





Surface Treatment Facility

Powder Coating at approved partners

CED, Powder Coating Facility 1:
Conveniently located near BMPL
(within 15 km).

Anodizing, Powder Coating Facility 2:
Situated within 50 km of BMPL.

Both facilities are located in Hyderabad, approximately 15 and 50 kilometers from each other. In the near future, we will establish **passivation** and **powder coating** facilities within a 1-kilometer radius. For the detailed plan, please refer to next slide 13.





Resources for Development

| Category | Vendors / Partners | Lead Time | Notes |
|---|--|---|--|
| Die Tooling (Overseas) | Top 3 Manufacturers – Ningbo, China | Design: 3 weeks Manufacturing: 8 weeks | Selection based on timeline & program volume |
| Die Tooling (India) | Dietech, Godrej, Axis | Design: 3 weeks Manufacturing: 8 weeks | For local development support |
| Die Correction / Toolroom (Contingency) | Jupiter (Hyderabad), BMPL In-house | Ongoing / As required | For die correction & maintenance |
| Fixtures & Cutting Tools | Makino, Maven Engineering, JS Automation | 7 weeks | Precision tooling & fixture readiness |
| Leak Test & Inspection Equipment | Maven Engineering (Chennai) | Concurrent with tooling (≈8 wks) | Design & development in parallel |





Upcoming Facility & Equipment's



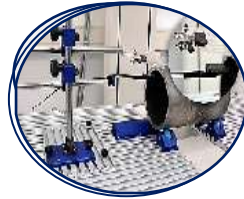
Surface Treatment Unit
(Chemical Conversion-
Passivation & Anodizing)



Salt Spray Test



Organic Coating
(expandable)



Digital Radiography



Tumbling (Vibro)



3D Scanning

| Facility / Capability | Timeline | Notes |
|--|-----------------|--|
| Surface Treatment Unit (Chemical Conversion – Passivation & Anodizing) | Nov 2025 | In-house capability for Mg & Al alloys |
| Organic Coating (Powder Coating) | Dec 2025 | Powder coating & expandable paint facility |
| Organic Coating (Painting) According to new business award | Q1 2026 | Robotic + Manual hybrid system for complex geometries |
| Tumbling(Vibro) | Jan 2026 | vibro/tumbling finishing to remove burrs, sharp edges, and surface irregularities prior to further processing. |
| Salt Spray Test | Jan 2026 | SST Testing Inhouse / Surface Treatment Shop |
| Digital Radiography | Jan 2026 | Advanced NDT for casting defect detection |
| 3D Scanning | Jan 2026 | Dimensional validation & reverse engineering |



In-house lab expansion plan (metallurgy, paint testing, salt spray).

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Thixomolding 850T Haitian – Machine readiness for Operations



**Thixo Molding Machine
HAITIAN**

850 T (Jan 2026) & 500 / 700 T (Apr 2026)

1350 / 1650 T (Jun 2026)

| Stage | Activity | Duration | Output / Milestone |
|-------|---|-----------------------------------|-------------------------|
| 1 | Design Finalization & Approval | 2–3 weeks | Approved Tool Design |
| 2 | Tool Manufacturing | 6–8 weeks | Tool Ready for Trial |
| 3 | T0 Trial | Immediately after tool completion | Initial Casting Samples |



Fire Safety Measures in Machine Shop



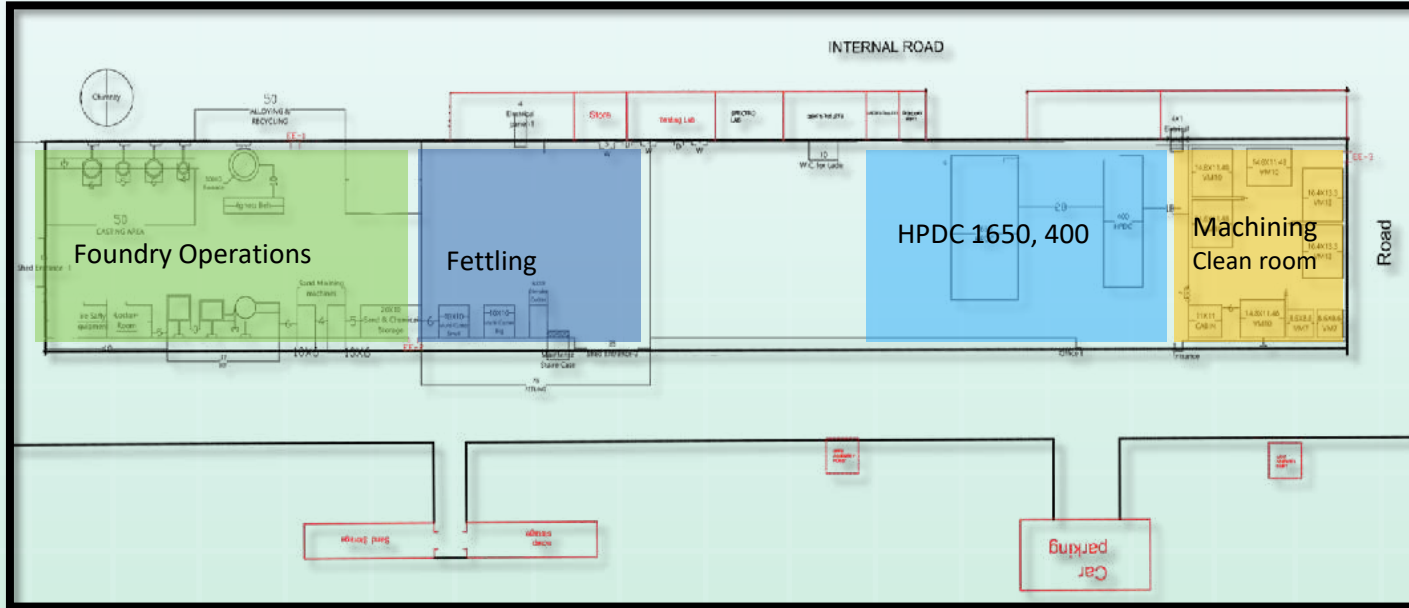
BMPL follows a dry machining process in a clean room and frequently flushes out chips to minimize fire risk.

In the event of a fire, sensors are installed inside the machine to detect the incident and trigger the automatic Class D fire hydrant. External Class D fire hydrants have been added, along with the additional safety measure of dry sand buckets.





Fire Prevention Action plan



R & M and Scrap stored in a Rain Proof containers 35m away from the furnace, no electricity.



Full Body suits

BMPL planning to establish **SAND SPRAYING MACHINE** for extra safety.



- Class D fire hydrants and dry sand buckets placed at critical points.
- Fire detection alarms installed at heat treatment ovens.
- Automatic Class D fire hydrant spraying system integrated with alarms.

FOUNDRY ZONE



- Fire sensors installed for early detection. Automatic fire hydrant spraying system activated by sensors.
- Heat treatment ovens secured with fire detection alarms and Class D hydrant systems.

MACHINE SHOP



- Class D fire hydrants installed at dosing furnaces, supported with sand buckets.
- Heat treatment ovens equipped with detection alarms and automatic Class D hydrant spraying systems.

HPDC ZONE



- Class D fire hydrants and sand buckets installed across multiple locations throughout the plant for comprehensive coverage.

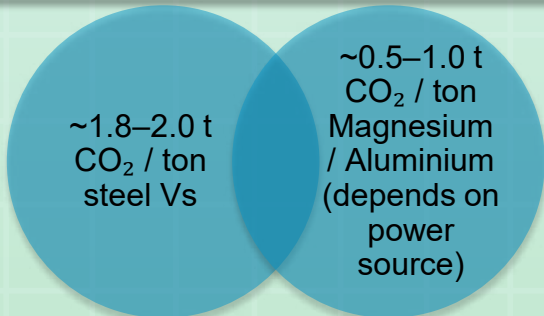
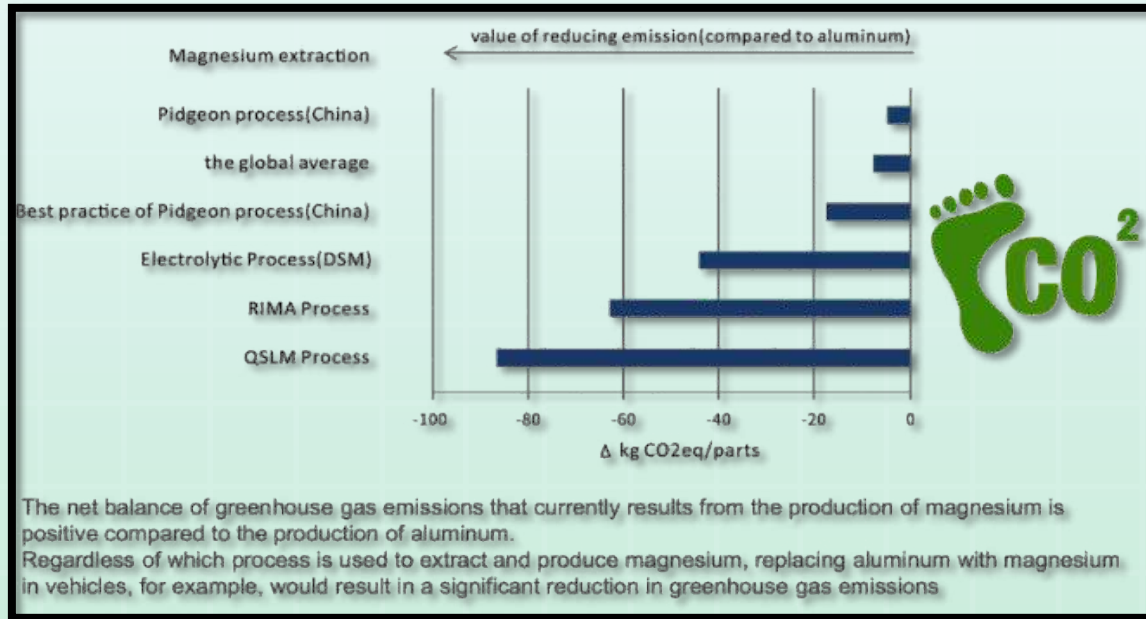
SHOP FLOOR





CO₂ Emissions (GLOBAL)

CO₂ Emission Global Extraction Process Of Mg With Various Production Process



Comparison between Non - Ferrous Vs. Ferrous Metals

✓ Non-Ferrous
(Magnesium, Aluminium)

✗ Ferrous
(Iron & Steel)

Direct Emissions:

Indirect emissions:

Lower CO₂ Emissions

SF₆ gases in HPDC

No carbon added as alloying element

CO₂ in heat treatment

Reduced carbon footprint

High CO₂ emissions due to:

Carbon as reducing agent (coke)

Direct combustion of carbon





CO₂ Emissions (BMPL)

BMPL Annual CO₂ Emissions Data (2025)

SF₆
(2 cylinders/month)
→ 168 kg SF₆ / year →
3,948 t CO₂ e

CO₂ Cylinders
(2 cylinders/month) →
168 kg CO₂ / year

Electricity
(70 kWh/month, 30%
solar) → 482 kg CO₂ /
year

Total (CO₂ e) ≈ 3,949 t
CO₂ e / year

BMPL CO₂ Emissions & Reduction Plan

1. Moving Toward Greener Alternatives

Adoption of **Novec™ 612** as an environmentally friendly alternative to SF₆.

significantly reduces greenhouse gas impact

Continuous **process improvements** to minimize gas usage and leakage.

2. Recycling to Further Reduce Emissions

Magnesium alloys are being **increasingly recycled**, which:

Cuts down on raw material extraction and energy use

Reduces CO₂ emissions by up to 90% compared to primary production

3. Future Outlook : Near-Zero Emissions

With continued adoption of **green alternatives, recycling, and energy-efficient technologies,**

The carbon footprint of non-ferrous industries is projected to become negligible in the future.





Sustainability Commitment



CLOSED-LOOP RECYCLING

- 100% recycling of in-house magnesium scrap
- Reduced raw material dependency & cost savings
- Lower CO₂ emissions by reusing magnesium in production



GREEN ENERGY OPERATIONS

- Powered by solar energy facility integrated with our 40,000 sq. ft. plant
- Significant reduction in carbon footprint
- Reliable, sustainable energy supporting large-scale operations



ECO-FRIENDLY MELTING & ALLOYING

- Use of protective gas environment (SF₆ alternatives) to minimize greenhouse gas emissions
- Safe handling of magnesium to ensure zero environmental hazards



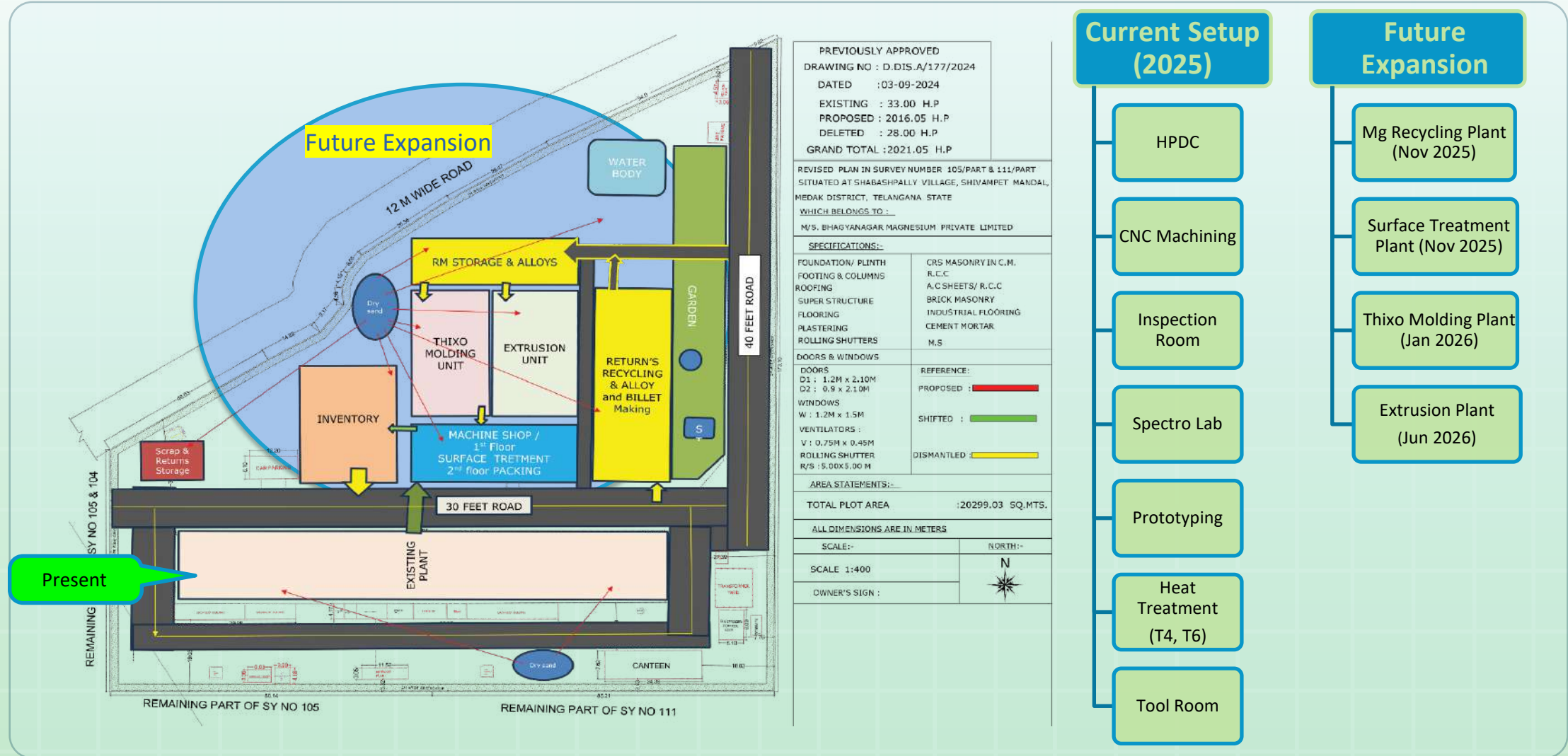
LIGHTWEIGHTING IMPACT

- Magnesium extrusions reduce vehicle weight by 30–75%
- Directly contributes to fuel savings, lower emissions, and better efficiency
- Supports global OEM sustainability goals in automotive, aerospace, and industrial sectors



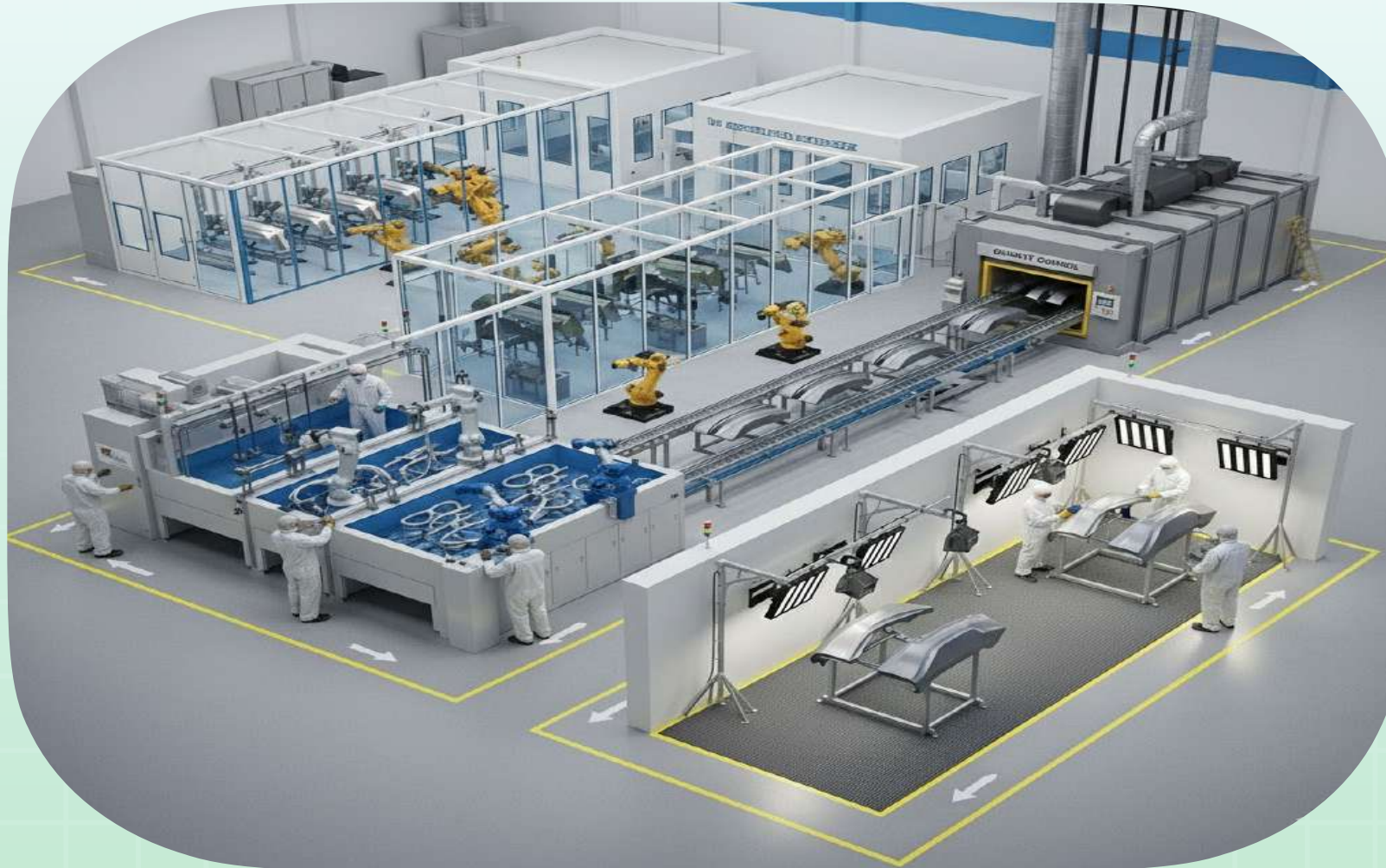


BMPL Plant Layout - Current Setup & Expansion Plan





Paint Shop Proposal 1

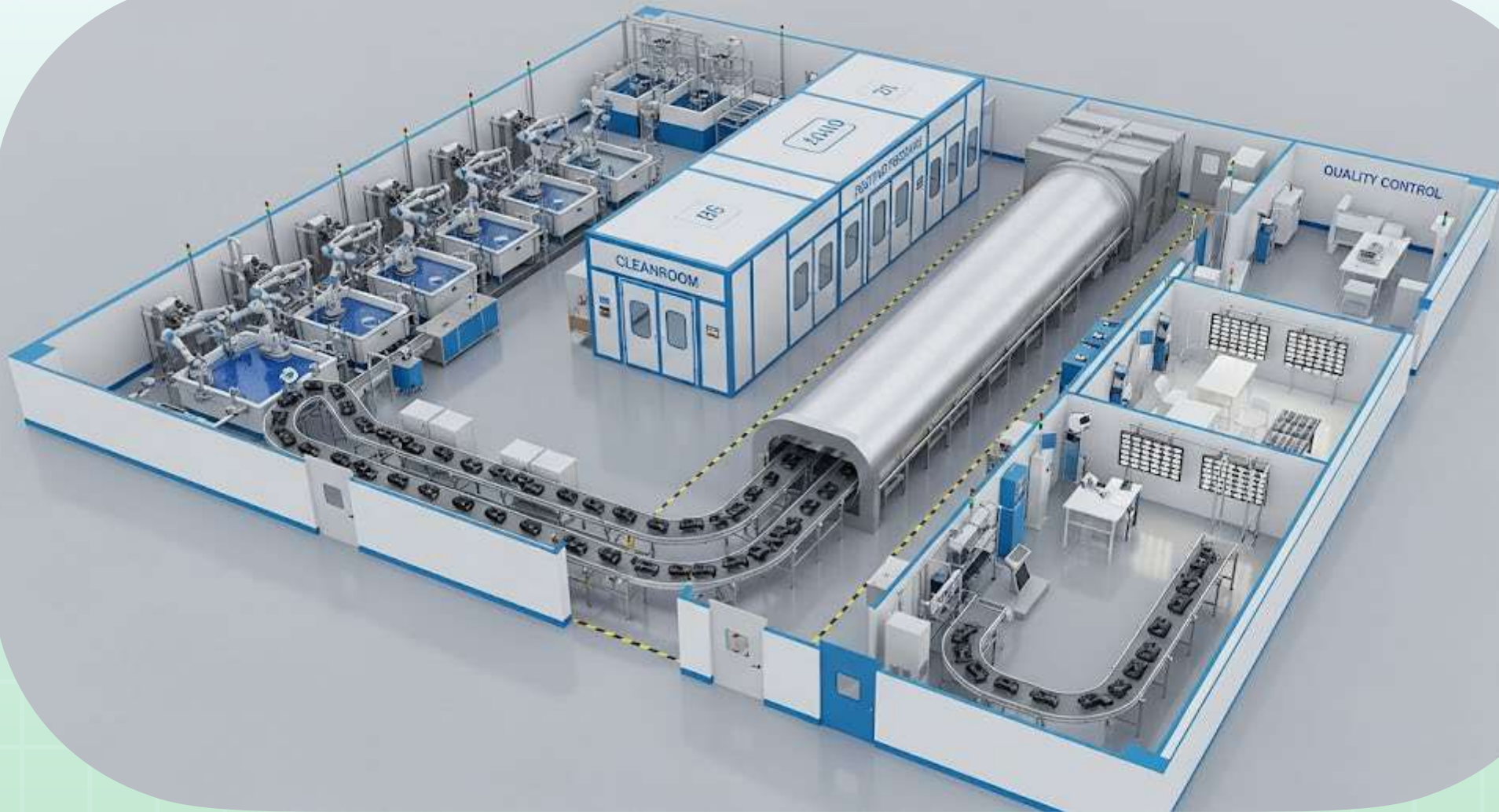


Proposals will be finalized based on projects





Paint Shop Proposal 2



Proposals will be finalised based on projects



#startupindia



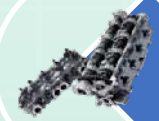
Global benchmarking case studies Aluminium to Magnesium conversions

Proven Case Studies Of Mg Integration Automotive Components



Transmission Housing

- Alloy: AZ91D
- Al: 7 kg
- Mg: 5 kg(<28.57%)



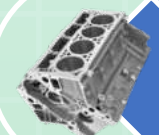
Cylinder Head

- Alloy: AE42
- Al: 20 kg
- Mg: 12 kg(<40%)



Cross Member

- Alloy: AZ91D / AE44
- Al: 14 kg
- Mg: 9 kg(<35.71%)



Engine Block

- Alloy: AE44
- Al: 35 kg
- Mg: 22 kg(<37.14%)



Wheel Hub

- Alloy: AM60B
- Al: 8 kg
- Mg: 5 kg(<37.5%)



Shock Absorbing Tower

- Alloy: AM60B
- Al: 7 kg
- Mg: 5 kg(<28.57%)



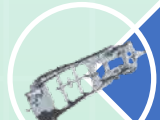
Trunk Cover

- Alloy: AZ91D / AM60B
- Al: 10 kg
- Mg: 7 kg(<30.0%)



Trunk Floor

- Alloy: AZ91D / AM60B
- Al: 15 kg
- Mg: 10 kg(<33.33%)



Frame Rails

- Alloy: AE44 / AZ91D
- Al: 18 kg
- Mg: 12 kg(<33.33%)

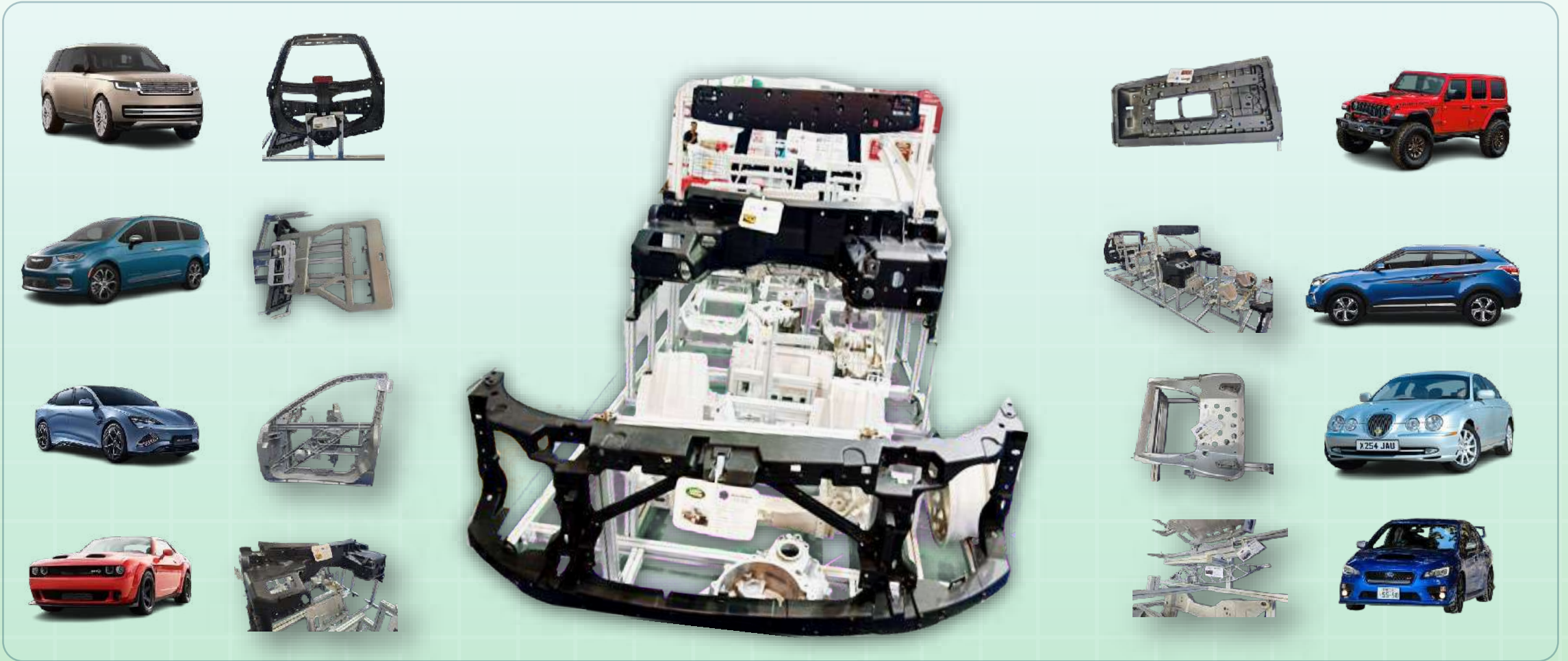


Door Pillar

- Alloy: AZ91D
- Al: 4 kg
- Mg: 2.8 kg(<30.0%)

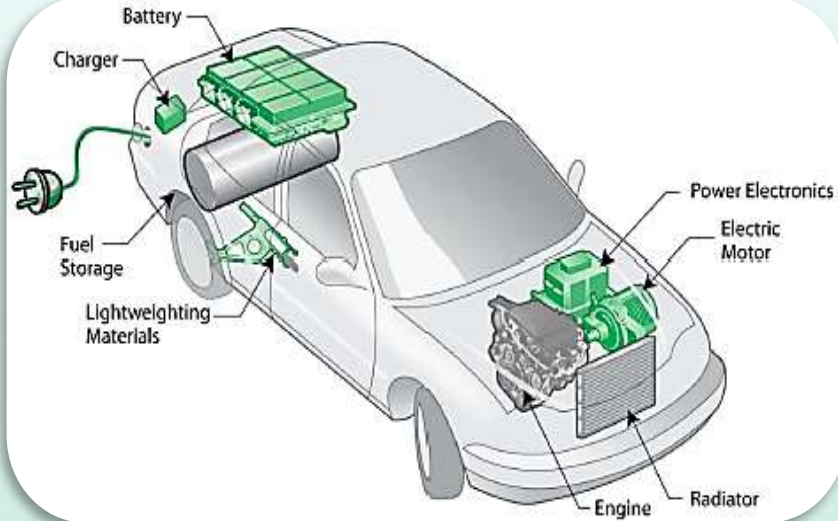


Magnesium Parts Of International OEM's (Design To Production)





Battery Electric Vehicles



CASE STUDY COMPRESSOR BRACKET



VALUE REALIZATION:
Magnesium Alloy instead of Aluminum 35% weight reduction (1.65 Kgs to 0.9 Kgs)
Thin wall thickness

Application

CASE STUDY CROSS CAR BEAM



Value Realization:
Magnesium Alloy instead of Steel 78% weight reduction (22 Kgs to 5.0 Kgs)

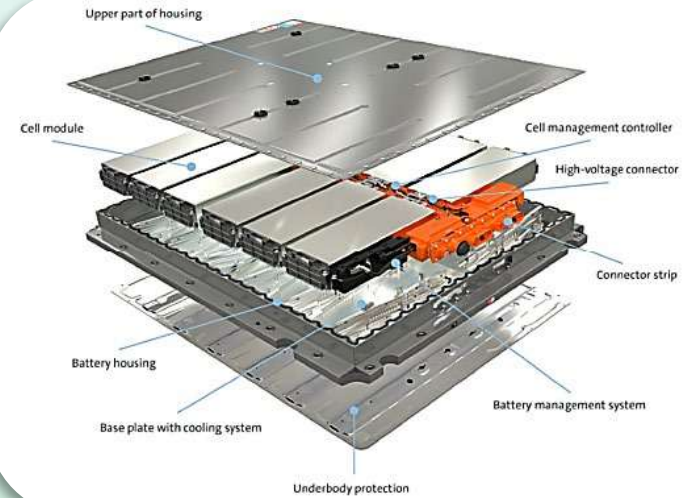
Wall thickness:
2.0 mm L x B x H : 1550.5 x 713.38 x 731.7 mm



E- MOBILITY



Potential Application



E-Motor parts

Tank applications (Hybrid)

Transmission

AC

Charging Infrastructure

BATTERY

Battery Housings / Covers

Battery Junction Box

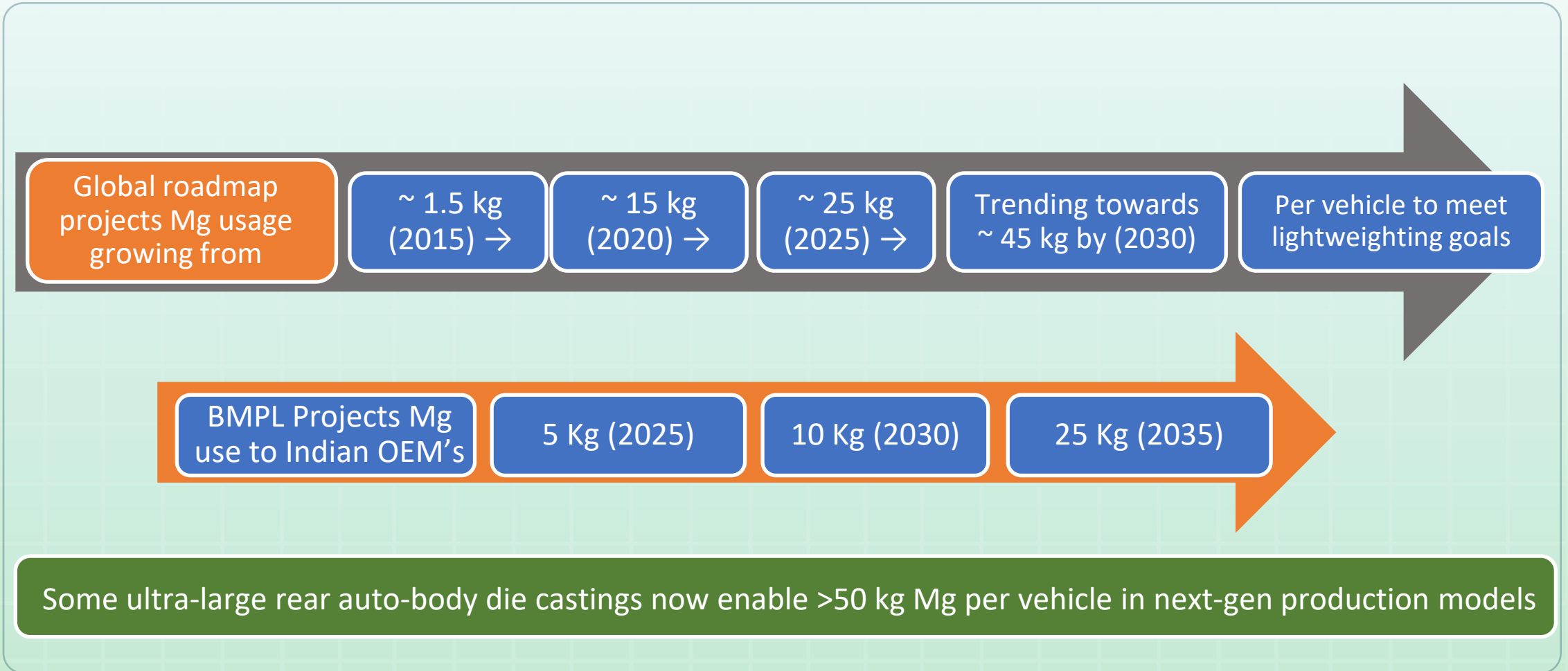
Battery Cell Modules / Holders

Battery cooling











BMPL Adapting Strategies For Magnesium Growth & Development In India





Project Case Studies in Magnesium

| Products | Engine Oil Sump | EV Battery Casing | valve front Engine Cover |
|------------------------|--|--|---|
| Images |  |  This part Under Testing at End Customer |  |
| Weight in "kg's" | 2.5 | 4.02 | 0.7 |
| LXWXH in "mm" | 475x310x115 | 580x480x80 | 300x161x25 |
| Expected Volume / HPDC | 30k / 1500 ton | 10-25k / 1500 ton | 70-100k / 600 ton |

| Products | Bracket | E-Bike Gear Box | valve front Engine Cover |
|------------------------|--|---|---|
| Images |  |  |  |
| Weight in "kg's" | 1.2 | 4.02 | 0.95 |
| LXWXH in "mm" | 274x226x156 | 203.91x113.9x62.72 | 550x250x150 |
| Expected Volume / HPDC | 70-100k / 600 ton | 300k / 200 ton (Export) | 70k / 1500 ton (Export) |

Domestic 3 parts Prototypes have been tested successfully. Ready for serial production looking for HPDC suppliers. 1 Part under testing expected approval within 6 month for serial Production.

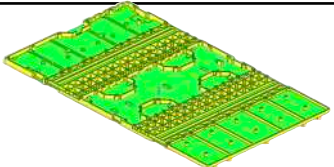

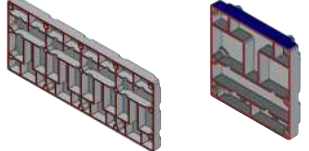
Export 2 parts Prototypes have been tested successfully. Ready for serial production looking for HPDC suppliers.




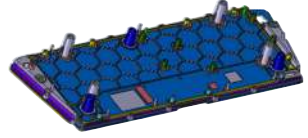


Ongoing Project's Development

| Products | Enclosure | Enclosure | Enclosure |
|-------------------|----------------|----------------|----------------|
| Royal Enfield | Part 1 | Part 2 | Part 3 |
| Material | Mg Alloy | Mg Alloy | Mg Alloy |
| Proposed Machines | 1500 + Tonnage | 1500 + Tonnage | 1000 + Tonnage |

| Products | Main Shield Ant Support | MB Shield | MB Shield |
|-------------------|---|--|---|
| Teja's Networks |  |  |  |
| Material, Weight | AZ91D 1.08 Kg | AZ91D 0.24 Kg | AZ91D 0.12 Kg & 0.03 Kg (multiple) |
| Proposed Machines | 1650T | 400T | 400T |

| Products | Piston |
|-------------------|---|
| Janatics |  |
| Material, Weight | AZ91D 0.74 Kg |
| Proposed Machines | 500T |

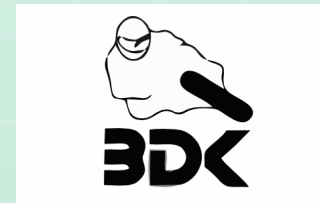
| Products | Piston |
|-------------------|---|
| BHTC |  |
| Material, Weight | AZ91D 0.25 Kg |
| Proposed Machines | 500T |

| Products | Main Shield Ant Support | TPW Fan Blade, Front Cover, Back Cover | Clutch Cover, Cover Magneto, Cover Clutch |
|---------------------------------|--|--|--|
| Bajaj Electricals Bajaj Auto |  |  |  |
| Material, Weight | AZ91D 1.08 Kg | AZ91D 0.31 Kg | Al to Mg Conversion 0.29 kg - 0.663 kg - 0.579 kg |
| Proposed Machines | 1650T | 400T | 400T |



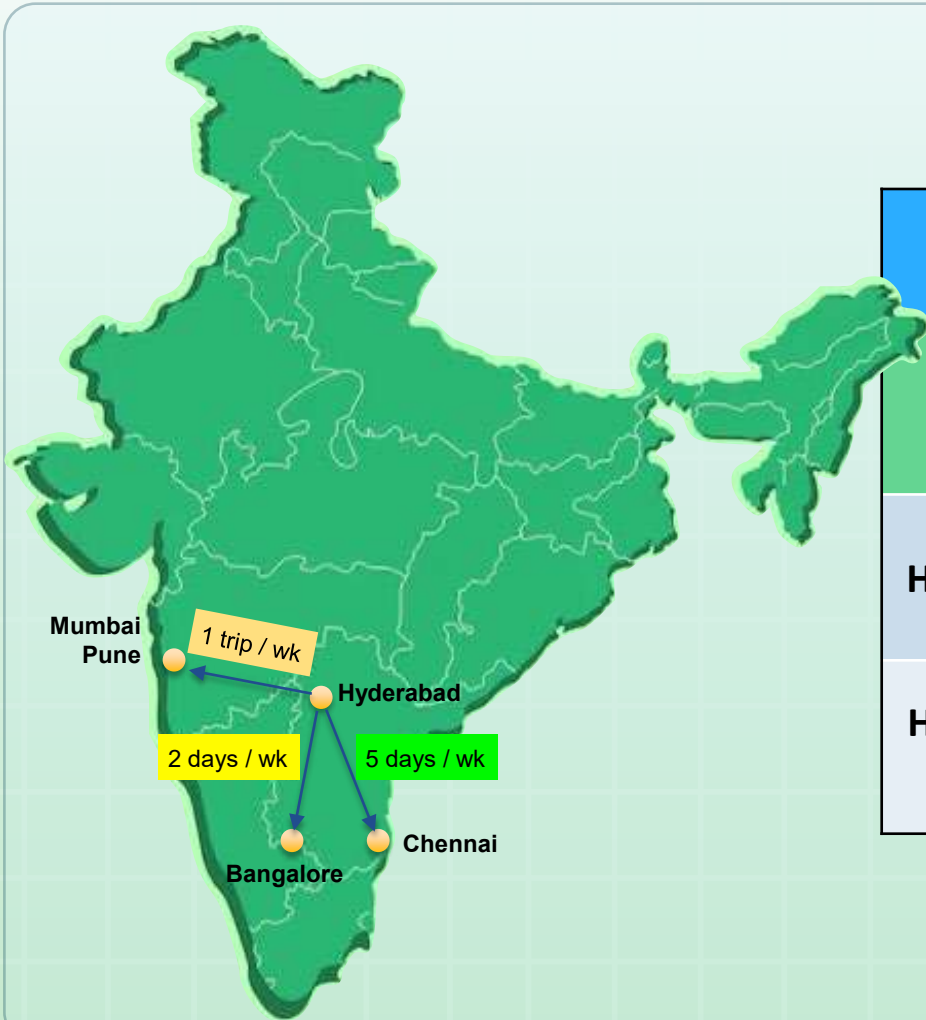


Our Customers





Group Logistics Facility - Regular Routes



| Route / Destination | Frequency | Details |
|---------------------------|-----------------|--------------------------------------|
| Hyderabad → Chennai | 5 days per week | Daily trips (Mon–Fri) |
| Hyderabad → Bangalore | 2 days per week | Regular service twice weekly |
| Hyderabad → Mumbai / Pune | 1 day per week | Weekly scheduled service (fixed day) |





Quality Certifications



QRO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

This is to certify that

BHAGYANAGAR MAGNESIUM PVT. LTD.
105/ PART & 111/ PART, SHABASHPALLY, SHIVAMPET, MEDAK- 502336,
TELANGANA, INDIA

has been independently assessed by QRO
and is compliant with the requirement of:

ISO 45001:2018
Occupational Health and Safety Management System

For the following scope of activities:
**MANUFACTURE AND SUPPLY OF SEMI-FINISHED AND FINISHED
MAGNESIUM AND ALUMINUM CASTING COMPONENTS**

Date of Certification: 25th June 2025 2nd Surveillance Audit Due: 24th June 2027
1st Surveillance Audit Due: 24th June 2026 Certificate Expiry: 24th June 2028

Certificate Number: 305025062553HS

QRO **EGAC** **IAF** *Chandana*
Head of Certification

Validity of this certificate is subject to annual surveillance audits to be done successfully on or before 360 days from date of the audit.
(In case surveillance audit is not allowed to be conducted, this certificate shall be suspended / withdrawn).
The validity of this certificate can be verified at www.qrocert.org.
This certificate of registration remains the property of QRO Certification LLP, and shall be returned immediately upon request.

India Office : QRO Certification LLP
142, 1st Floor, Ansa Building, Near Paschim Vihar West Metro Station, Delhi-110061, (INDIA)
Website : www.qrocert.org, E-mail : info@qrocert.org

QRO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

This is to certify that

BHAGYANAGAR MAGNESIUM PVT. LTD.
105/ PART & 111/ PART, SHABASHPALLY, SHIVAMPET, MEDAK- 502336,
TELANGANA, INDIA

has been independently assessed by QRO
and is compliant with the requirement of:

ISO 9001:2015
Quality Management System

For the following scope of activities:
**MANUFACTURE AND SUPPLY OF SEMI-FINISHED AND FINISHED
MAGNESIUM AND ALUMINUM CASTING COMPONENTS**

Date of Certification: 25th June 2025 2nd Surveillance Audit Due: 24th June 2027
1st Surveillance Audit Due: 24th June 2026 Certificate Expiry: 24th June 2028

Certificate Number: 305025062551Q

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TELANGANA, INDIA

has been independently assessed by QRO
and is compliant with the requirement of:

ISO 14001:2015
Environmental Management System

For the following scope of activities:
**MANUFACTURE AND SUPPLY OF SEMI-FINISHED AND FINISHED
MAGNESIUM AND ALUMINUM CASTING COMPONENTS**

Date of Certification: 25th June 2025 2nd Surveillance Audit Due: 24th June 2027
1st Surveillance Audit Due: 24th June 2026 Certificate Expiry: 24th June 2028

Certificate Number: 305025062552E

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Head of Certification

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IATF-Aligned System Framework & Implementation Plan

System Framework (Core Structure)

1. Quality Policy & Objectives
2. Document Control & Record Retention
3. APQP / PPAP / Control Plan Integration
4. Process Flow Diagram (PFD) + PFMEA + MSA
5. SPC & Special Characteristic Monitoring
6. Change Management Control (ECR/ECO)
7. Internal Audit & Management Review
8. Customer Complaints & 8D Problem Solving
9. Supplier Quality Assurance
10. Training, Competency & Skills Matrix

“All elements are structured to align with IATF 16949 clauses.”

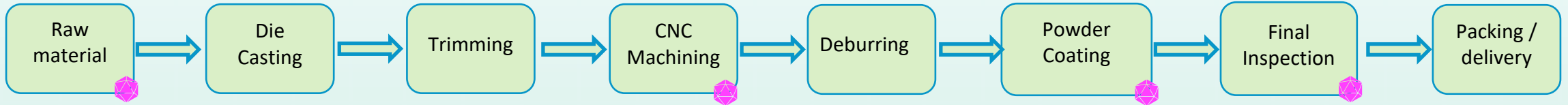
Implementation & Training Plan

| Phase | Activity Description | Target Completion |
|---------------------------|--|-------------------|
| Phase 1 – Awareness | IATF overview training for all departments | Completed |
| Phase 2 – Gap Assessment | Internal gap audit vs IATF requirements | Completed |
| Phase 3 – System Design | Policy, procedures, forms documentation | Completed |
| Phase 4 – Staff Training | Functional training (APQP, MSA, FMEA, SPC, etc.) | In Progress |
| Phase 5 – System Rollout | Live implementation across functions | Nov 2025 |
| Phase 6 – Internal Audits | IATF-aligned audits and review meetings | Dec 2025 |
| Phase 7 – Certification | Final alignment and readiness review | Jan 2026 |





Sub-Supplier Management Process



| Stage | Supplier Name | Process | Location | QMS Certification | Status | Remarks |
|-------------------|------------------|-----------------|-------------------------------|------------------------------|----------|--------------------|
| 1. Raw Material | Scottish | Material Supply | Mumbai – 800 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| 2. CNC Machining | ARDI | CNC Operations | Jeedimetla – 60 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| | Uniq Magnesium | | Cherlapalli -60 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| | MCT | | Miyapur – 65 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| | SSV Technologies | | Balanagar -55 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| 3. Powder Coating | Gowri Sahoo | Powder Coating | Bolaram -60 km from BMPL | ISO 9001, VDA Audit Exposure | Approved | Certified Supplier |
| 4. Radiography | Gamma | Radiography | Balanagar -60 km from BMPL | ISO 9001 | Approved | Certified Supplier |
| | MQS | | Sanathnagar - 60 km from BMPL | ISO 9001 | Approved | Certified Supplier |



Magnesium Anode Development

We are a leading supplier of magnesium anodes in India, delivering a consistent 10,000 pieces per month (over 1 lakh units annually) across multiple models.



Anode Dies



Magnesium alloy (AZ63B) melting under protective gas



Controlled pouring of molten magnesium into mold



Finished magnesium anodes after fettling and inspection

Contact Us

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Secunderabad-500 003 Telangana, India.

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+91 8015176346

Ph: + 91 40 27175891,

Fax :+ 91 40 27172140.

www.bhagyanagarmagnesium.com

www.surana.com



BHAGYANAGAR MAGNESIUM

Turn key Light weighting solutions using Magnesium alloys

Your reliable partner for all your light weighting needs

Contact us to discuss how we can bring your light weighting project to life. Visit bhagyanagarmagnesium.com to learn more about how we can help address your requirements

Contact:

KATTA REVANTH – Executive Director

Email: kattarevanth@surana.com

SIVABALAN.PK Vice President – Business Development

Email: sivabalan.pk@surana.com



Thank You !



TEAM BMPL



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